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AGE DIFFERENCES IN PERSONALITY DURING ADULT YEARS

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Psychologists interested in genetic development have been concerned primarily with the first third of the life span and have left relatively unexplored matters of development and change beyond the age of twenty. Quetelet's important two-volume work (88), published in 1835, probably marks the beginning of the scientific study of the life span.² In his efforts to throw light on development throughout life, Quetelet assembled a great variety of data,—ages when various types of crimes were committed, ages when various types of drama were written, ages of admissions to the hospitals for the insane, morbidity and mortality data, data on strength of grip. Despite this auspicious beginning over a century ago, interest has lagged until recently. In the last dozen years a number of volumes dealing with the adult years and with aging (9, 14, 57, 87) have appeared and several symposiums (58, 59) have been held. Efforts have been made also to summarize the research on certain aspects of development. Data on adult learning and intelligence have been reviewed several times (66, 92, 93, 122), and two general reviews, one by Miles (72) in 1935 and the other by Hofstätter (34) in 1938, have included studies of the type summarized here.

The present review is concerned with changes beyond the age of twenty in personality, in interests, attitudes, motives, aspirations. For the most part the review will be limited to studies reporting age differences, and will not include the literature on special adult problems such as unemployment or marital adjustment except in instances where age data are reported. The review may be considered reasonably complete up to the summer of 1944. Many reports including age data, however, do not reveal that fact in their titles and thus are extremely difficult to locate. A number of studies have been discovered through sheer chance, and others undoubtedly have been overlooked.

INTERESTS AND AVERSIONS

Investigators have been especially active in studying adult interest patterns. Their efforts have been useful in giving an overview of personality change during adulthood and have provided significant data regarding values and motivations operating at different ages. Available studies relate to recreation, reading, movies, radio, hobbies, to "dislikes" as well as "likes."

General Studies of Interests and Activities. The most comprehensive studies of age differences in adult interests are reported by Strong (100, 103). His

¹ Now on leave of absence as Lieutenant (J.G.), H-V(S) USNR. In the preparation of this review the writer is indebted to Mr. David Bissett and (especially) to Miss Margaret Cairncross for bibliographical assistance.

² It is interesting that no reference to Quetelet's work appears in American bibliographies on the psychology of adult life. Hofstätter (34) in a German review called attention to Quetelet's efforts.

analysis (100) of 2340 Vocational Interest Blanks for professional men of 20 to 60 years of age resulted in the following conclusions: Older and younger men are equally catholic in their interests, though their likes and dislikes are not identical. Older men do not like activities involving physical skill and daring (walking on edge of precipice, being an aviator), nor does change or interference with established habits or customs appeal to them. In general, liking for linguistic activities declines with age, except reading which is liked better. Interest in most amusements declines with age except "cultural" activities (art, art galleries, museums), and older groups tend to prefer relative solitude. Things most liked at 25 tend to be liked better with increasing age, and dislikes similarly tend to become more pronounced.

Strong observed that about 50 per cent of the total change occurred between 25 and 35, about 20 per cent between 35 and 45, and about 30 per cent between 45 and 55. An interest-maturity score (a quantitative expression of the extent to which a given person's interests resembles those of 15- or 55-year-olds) showed similar trends, but little change appeared beyond 25 in later studies (103) involving a more representative sample of adults.² Further analysis in these later studies indicated that age trends for items did not in every case represent a straight line from 15 to 55. In fact, 40 per cent of the items showed trends whose direction was reversed at age 25, 40 per cent showed straight line trends from 15 to 55, and 20 per cent differed for different groups. In view of these various trends, two I-M scales were prepared, one based on 15-25 differences, the other on 25-55 differences. A correlation of $-.41$ between these scales suggests that changes in interests beyond 25 reverse the trends prior to 25. Changes in interests appeared to be most rapid during the teens. Of the total change between 15 and 25, one-third occurred between 15.5 and 16.5 years, one-third between 16.5 and 18.5 years, and the other third between 18.5 and 25 years. Relatively little change on the 15-25 year scale occurred after 25, but on the 25-55 scale fairly uniform changes occur year by year from 25 to 55. Strong's general conclusion is that "interests change rapidly from those held at 15 years to those held at about 25, and then shift in the reverse direction much more slowly from about 25 years to 55 years." (103, p. 285).

Changes in types of interests apparent in the sample of representative adults (103) were substantially the same as those found in the group of professional men first studied. In his more recent volume, Strong (103) emphasizes similarity of interests among adult age groups; age differences are much less pronounced than occupational or sex differences. Interests of 15-year-olds correlated .73 with those of 55-year-olds, and interests of 25 and 55-year-olds correlated .88. Strong concludes that "age and the experience that goes with age change an adult man's interests very little. At 25 years he is largely what he is going to be and even at 20 years of age he has acquired pretty much the interests he will have throughout life." (103, p. 313) The present writer, nonetheless, ventures the opinion that while the 25 and 55-year-old may be essentially alike in interests, those age differences that do exist, small as they appear in correlational data, are extremely important in understanding the older as compared with the younger man.

² In the recent summary of his interest studies (103) Strong reports age data for various groups: (a) the groups of professional men described previously, (b) a sample of 1000 men selected to be fairly representative of the population, (c) 80 pairs of fathers and sons averaging 58 and 22 years of age, (d) various groups of students re-tested after intervals of several years.

Thorndike (113) asked older professional and business people, all college graduates, to rate in retrospect the degree to which they were interested in 17 selected activities at each decade of their lives. Sports, outdoor games, dancing, reading fiction decreased in interest from the 20's to the 50's and reading newspapers and non-fiction gained. A median correlation coefficient of .63 (114) indicates the relative stability of these interests from 20 to 50. Interest in reading was least stable; playing a musical instrument was the most stable interest. The interest patterns of individuals were stable on the average to the extent of a correlation of .75—each correlation involving one person with 17 interests rated as of the two ages. Other inter-correlations (115), though low, show certain interests to go together and others to be antagonistic: High interest in one's regular job, for example, tended to be associated with low interest in recreation, especially sedentary games, dancing, theater and movies.

The results of interviewing one out of every 500 adults in Missouri with respect to their leisure time activities has been reported by Briggs (8). It was found that older people attended fewer movies and dances, participated less frequently in athletic events and sports, played cards less often and entertained friends less. Concert or lecture attendance and attendance at church did not seem greatly influenced by age, and the age of 25 to 50 seemed to be the lodge and club attending age with little change evident during this period. Two other general studies of interests have grown out of surveys made in an effort to determine the library needs of communities. Kelley (43) collected data in an eastern metropolitan area by means of a mailed questionnaire. The general trends described above again appeared: Interest in sports and active recreation tended to decline whereas interest in the more cultural pursuits such as reading and the arts tended to increase. Hall and Robinson (28) surveyed a rural western community of about a thousand people, by interviewing and testing 100 subjects carefully selected as representative of the population. Older groups showed greater interest in religion and politics, in newspaper reading, magazine reading and conversation. Interest in visiting and flower gardening increased with age whereas fishing and dancing lost in popularity. Quality of reading done and of movies attended seemed to increase with age. Other studies of special groups show essentially the same pattern of change described above. Allard (2) found the activity patterns of older and younger women elementary school teachers to differ in that older teachers read more non-fiction, rested more, retired early more frequently; they also swam less, danced less, played bridge less, took fewer professional and cultural courses. Adults attending Cleveland night school courses (135) showed similar trends in interests but selective factors probably lessen somewhat the value of this study. Sorokin and Berger (98) using a different approach to the study of interests, assembled time schedules from adults. Their cases were mostly in the 20's and thus do not provide much in the way of a life perspective. Younger adults appeared more social and active in their daily pursuits whereas older adults were more domestic and sedentary.

Not only are people more sedentary in their likes at older ages, but they participate in fewer activities. In a study made for the National Recreation Association (134) those between 46 and 60 years of age checked about 42 per cent fewer activities than those 21 to 26. With the exception of musical and educational activities, which increased with age, all types of activities decreased in frequency of participation. In general it was found that "desire" to participate was influenced by age in the same way as actual participation, but less mark-

edly.⁴ Pace (78) found the older of two young adult groups (average age 27 and 31 years) to participate less in leisure pursuits. The extent of social participation (attending meetings, memberships, contributions) among rural folk was studied by Mangus and Cotton (67) and appeared to pass through an age cycle of inactivity, through wide participation, back to inactivity. Median participation scores increased from 4.9 for those 20 to 34 years of age, to 6.9 at 55 to 64, and back to 3.5 for those over 75.

Hobbies. The study of Missouri adults by Briggs (8) mentioned above has also provided data as to the relative frequency with which people of different age groups report having hobbies. Forty-six per cent of those 15 to 24 reported hobbies, with the percentage regularly increasing up to 95 per cent of the 65 to 74 group. A sharp decline in hobby participation beyond 74 occurred. In general those with more education reported more hobbies. Nestruck (75) reported somewhat different age trends, but his study involved "constructional activities" only,—preparing and cooking food, furniture making, painting, taking motion pictures. Men between the ages of 25 and 35 had more such hobbies than did men between 18 and 25 or between 45 and 55. Those who had participated in a hobby in childhood and youth tended to have more hobbies in adult years. Super has shown that different types of hobbies attract men of different ages (106, pp. 39-40), and that more older than younger men prefer their jobs to their hobbies (107). Landis (50) suggests that men's hobbies change more with increased age than do the hobbies of women, and believes that this "enforced" change contributes to the poorer adjustment of older men.

Reading Interests. Several studies have focused attention on the reading interests and habits of adults. Two unpublished theses summarized by Gray and Monroe (24) suggest the frequency with which adults turn to reading for recreation. Parson's thesis (79) revealed that the proportion reading books and average time so spent decreased with age, while the percentage reading magazines declined though the time so spent by those who did read remained about the same. In the case of newspapers, more people spent more time as age increased. The thesis by Farnsworth (20) reported slightly less book reading and more magazine and newspaper reading among older people. These results, and studies already mentioned (2, 28, 100, 113), suggest that age trends in reading are not striking, though if anything, reading—especially non-fiction—is liked better by older people.

Waples and Tyler (118) asked groups of adults to indicate what subjects they would like to read about. The reading interest patterns of two groups of telephone supervisors differing *five* years in average age correlated .91 while the interests patterns of women telephone operators differing *twelve* years in average age correlated .85. Older and younger high school teachers with an average age difference of *seventeen* years had interest patterns that correlated .81. Though progressive age differences appeared, they were by no means as striking as differences between sex and occupational groups, and between groups of differing amounts of schooling. Elsewhere Waples (117) has presented data indicating age differences in library withdrawals and in newsstand purchases.⁵

⁴ These trends do not necessarily contradict Strong's findings of equally widespread interests among older and younger men. Strong's study involved "liking" whereas the survey just reported concerned "participation."

⁵ Waples (117, pp. 214-215) states that some 500 manuscript pages of tables regarding community reading in Chicago and St. Louis are available for reference in the library of the Graduate Library School, University of Chicago. The data are broken down to show all meaningful relationships among 27 variables including age.

Circulation figures for magazines in 90 cities were reported by Lazarsfeld and Wyant (60) to correlate $.39 \pm .06$ with the proportion of people in those cities over 45 years of age. This finding they thought due possibly to the oldsters having more time and money for recreation.

Several investigators (22, 38, 39, 89) have contrasted adult newspaper reading interests with those of adolescents (high school and college students). Johnson, for example, reported results for grades seven through eleven in one article (39) and for adults in a second article (38). When grades nine through eleven were contrasted with the adult groups it appeared that interest in comics, the sport page and puzzles had declined (though comics and sports were still interesting to adults) while interest in local news, news inside the paper, editorials, and advertisements increased. Front page news was near the top for all age groups. The sexes were similar with respect to these trends and in most other respects. Women, however, evidenced a much greater interest and one which increased with age in society news, advertisements, and the home page.

Movie and Radio Interests. Radio and movie interests of adults have not been so frequently investigated as have other interests. In general, however, both movie attendance (8, 100, 119) and radio listening (60) are less frequent among the older groups. Strong's study (100) suggests older men enjoy "cowboy" movies and movies dealing with travel and educational topics more, but like movies dealing with social problems less. More 50-year-olds preferred reading to going to the movies than did 20-year-olds. That adults tend to choose movies of a better quality than do school children has been shown by Hail and Robinson (28) and by Edman (18). According to Edman's study adults tend to be influenced more by advertisements in newspapers and outside the theater, or to attend without previous knowledge, while school children are influenced more by interest in the actors or source of production, or they follow recommendations of friends or magazine reviews. Most popular at all grade levels in Edman's study were comedy, farce, and romantic films. Among adults, however, comedy and farce dropped in popularity; romantic films, historical and social drama, and dramatized novels assumed places of importance.

Lazarsfeld (60) showed that in general people under 40 listen to the radio more than do those over 40. In the case of serious listening the relationship with age at first appeared inconclusive, but trends appeared when different cultural levels were compared. Older adults of high cultural background listened more to serious programs than did younger adults. Among the low cultural groups the trend was reversed. There was a definite tendency for older adults to show greater preference for radio over reading as leisure time activity. As a source of news, however, several studies summarized by Lazarsfeld (61) show older adults to exceed younger adults in preference for newspaper over radio. Habits developed before radio commentators were so prominent may account for this preference among older adults. A contrast of rankings of radio programs by those over and under 30, by Cantril and Allport (11), showed interest in sports and orchestra dance programs to rate higher among the younger men whereas the older men rated "old song favorites" and news events higher.* For women dance orchestras and jazz songs lost rank with increased age while old song favorites and opera gained. According to a study by Rubin-Rabson (90), though, older people appear to be more indifferent to both classical and modern music.

* This is not necessarily a contradiction to other studies here summarized. Among radio programs older men ranked newscasts higher than other offerings. At the same time they preferred newspapers to the radio as a source of news.

Aversions. Comment so far has been with respect to the everyday interests of people; further insight into interest patterns can be obtained from data indicating the things they dislike. Cason's study (12) of common annoyances represents the most important source of evidence, since detailed results are presented for age groupings from 10 to 90. Average scores indicated that annoyances tend to increase up to the middle age group (40-60) but to decrease for the old age group (60-90). As might be expected some annoyances tend to drop out while others are acquired, and on some items opposite trends characterize the two sexes. Items such as the following were checked as annoyances more frequently by the older groups: to see suggestive dancing at a social dance, to walk on ice-covered slippery sidewalks, to hear a person refer to a sex subject in a conversation, to see a woman smoking a cigarette in public, very noticeable powder on a woman's face, the odor of liquor on a person's breath. The following are typical of those checked less frequently by the older groups: a person with a gushing manner, to hear a person make bad grammatical errors, to have to get up in the morning, to hear a person scratch his fingernails on the blackboard, to see a woman wearing high heels, to see a person wearing clothes which are not appropriate for the occasion. In general borderline moral wrongs are more annoying to older people, yet at the same time they seem increasingly tolerant of many ordinary annoyances. Some of the trends seem to grow out of age differences in cultural backgrounds (e.g. seeing a woman smoke); others to be the result of changed values with age (e.g. appropriateness of dress); some to be due to increasing infirmities (e.g. slippery sidewalks) and others due to the fact that items were being judged in the light of experience which as age increases becomes less common or has receded farther into the background (e.g. scratching fingernails on blackboards⁷).

Some experiments by Thorndike (113) also relate to aversions. Certain experiments were set up to determine the relative ease with which young (21-25 years) adults and old (over 30 or 40) could learn things devoid of intrinsic interest, the relative reaction of adults to frustration and failure, their ability to overcome aversions by repetitions of the experience, their repugnance to change, and their general curiosity. In general these studies showed few differences between the age groups. But it should be pointed out that the groups involved were small (often only 10 representatives), that the age differences were relatively small, and that all subjects were habituated to experiments and questions of all sort. Greatest age differences appeared with respect to doing repugnant things such as eating beetles, worms, and human flesh, and desecrating things revered (e.g. spitting on picture of Washington or one's mother). At least the older groups said that they would require a more enticing offer of money to do these things than did the younger groups.

ATTITUDES AND OPINIONS

A number of investigators have studied changes in attitudes during the adult years. Studies dealing with political and social beliefs, with moral codes, with employment morale, and with tendencies to resist changes in beliefs or practices, all give insight into the adult mind.

Political and Social Beliefs. Sullivan (104) studied attitudes of women teachers toward social issues and found no trends with age. The lack of correlation between age and attitude is surprising since the older groups showed clear

⁷ Decrease in ability to hear high frequencies may also be responsible for this particular trend.

superiority in information regarding social problems, and a correlation of .34 between information scores and liberality of attitude was obtained. Gundlach (25) failed to find a relationship between age and liberality of political opinion. Young (132) reported a study of a church congregation in which he found a slight but statistically unreliable tendency for older people to be less internationally minded. Harper (32) reports that educators over 45 years of age are not reliably different from those under 35 with respect to conservatism-liberalism. Pace (78) whose study has already been mentioned found no difference in liberality of attitude, in adjustment, or in morale, between two young adult groups averaging 27 and 31 years of age. Though this age difference was slight, reliable differences had occurred in leisure time participation for the same groups.

Several studies, on the other hand, have shown positive relationships between social or political views and age. Duffey (17) has shown parents to be reliably less pacifistic than their daughters and also to favor capital punishment more than do their daughters. Newcomb and Svehla (76) have found parents to be more conservative than their children and older parents to be more conservative than younger parents with respect to attitudes toward the church and toward Communism. The age differences in this latter study tended to be related to sex, men showing the greater age differences. Eldridge (19) suggests that up to about the sixties, adults show less and less "political intelligence." He tested some 1250 voters with a true-false test of public opinion to arrive at this conclusion. There was a steady decline in mean scores from the 20's to the 60's but the curve tended to rise again after 60. Eldridge offers as a possible explanation of the somewhat unexpected negative correlation between age and "political intelligence" the fact that the middle aged are more absorbed in domestic and vocational affairs and thus may be relatively insensitive to political issues.

*Employment Attitudes and Morale.*⁸ Several studies deal with the attitudes of the employed and the unemployed, particularly with their morale. Watson (121) reports no relationship between morale and age over most of the age range, but men over 45 had slightly higher morale scores than the rest of the population. In interpreting these results he suggests that older men maintained their traditional faith in American opportunity for ability to bring advancement. Hall (27) analyzed the attitudes of employed and unemployed engineers. Of the unemployed men, those between 31 and 40 years of age showed the lowest occupational morale and also seemed most bitter toward employers. Unemployed men under 30 and those over 40 showed higher morale and greater friendliness toward employers. Tucker (116) analyzed the attitudes of 800 unemployed men and women (average age 30 years) who came to The Adjustment Service in New York City in 1933-34. The older men and women showed more favorable attitudes toward employer, toward religion, and toward the American form of government—but felt that employers discriminated unfairly against older workers. Personal optimism was correlated with age among women but not among men. A significant finding was that the length of time unemployed was practically unrelated to expressed attitudes.

Moral Beliefs and Standards. Several studies have been concerned with age differences in moral codes. Of the studies to be mentioned that by Anderson and Dvorak (3) is probably most revealing. A multiple-choice questionnaire in

⁸ Studies dealing with "job-satisfaction" might very well be included here. Instead, however, they have been included later in a discussion of vocational motives.

which some right or wrong choice was required was given to 60 college men and women, to 48 mothers and fathers, and to 34 grandmothers and grandfathers. College students differed from their elders with respect to the basis of their moral judgments, preferring to make their decisions according to standards of intelligence or aesthetics rather than standards of "right and wrong." Parents ranked between grandparents and children in their emphasis upon absolute standards of right and wrong, aesthetic standards, and intelligence. Public opinion was the least frequent basis for choice at all ages. The greatest differences in standards of conduct appeared between age groups rather than between sex groups.

Acheson (1) studied the attitudes of some 50 women graduate students ranging in age from 23 to 52 with respect to such practices as women smoking, discussing sex questions with men, reading popular sex literature, drinking, petting, and free love. Self-estimates of behavior and attitudes during college and at present were obtained. Although the number of cases was too small for reliable conclusions, the older women tended to change least from their own college days to the present, while the group aged 30 to 34 changed most. The 25-29 year-old group changed relatively little but was originally most liberal.

Jones (41) has investigated the types of solutions that children and teachers of different ages think correct, excusable, or wrong when various moral problems are presented to them. That the children and the adults differed markedly in their judgments of right and wrong on certain issues suggests difficulties that the older generation has in understanding the behavior of the younger generation,—and the fact that adults differ as much as this study revealed suggests the conflicts posed for children trying to learn "right" from "wrong." In a second study Jones (42) asked teachers of different ages to indicate what they personally felt to be right, excusable or wrong, and also how in their opinion society at large would judge. Though there was considerable disagreement among teachers, they were in greater agreement when their personal ideals were compared than when comparison was made of their judgment as to what society expects! When the data were analyzed with respect to age, it appeared that older teachers considered more of the solutions either definitely right or wrong; they classified fewer proposed solutions as "excusable." A definite gap appeared between "self ideals" and "social standards" at all ages, but the gap was greater for those of older ages. The self-ideals of the younger groups were more in agreement with their ideas of society's standard.

A *Fortune* survey (133) indicated that older groups have more traditional ideas regarding right and wrong. Thus those over 40, more often than those under 40, tended to think that neither husband nor wife should have had sexual intercourse prior to marriage, and the older people tended to be less liberal in their attitudes toward the relaxing of the divorce laws. Cason's study (12), mentioned earlier, suggests older people to be less tolerant of borderland moral wrongs.

Resistance to Change. The suggestion is clear in the foregoing material on attitudes, as well as in the material on interests, that adults tend to maintain earlier established beliefs and to show some reluctance to adopt new ideas. Several studies have dealt more directly with this issue. Pollak (86) studied data from market and public opinion polls, analyzing responses to thirty questions dealing with the acceptance or rejection of new products, new forms of packaging and informing the consumer, changes in political, economic or social organizations, and changes in internal or foreign policy or government. Although those over 40 rejected change somewhat more frequently than did those

under 40, when the majority of the older rejected a change the young did also. Bean (4) studied the willingness of students and parents to accept change, finding that parents over 40 were less willing to accept the new than were those under 40. The *Fortune* poll (133) mentioned above showed older adults somewhat less willing than younger adults to break from political tradition on the third term issue. And Tucker (116), also mentioned earlier, found older adults to prefer the status quo.

Most studies, such as those just described, have not been designed to check on actual changes in the attitudes of the same people. How readily do attitudes of different age groups change? Two studies bear on this question. One investigation by Lorge (64, 65) involved two testings two weeks apart with a number of Thurstone's attitude scales. Twenty-five individuals between 20 and 25 years of age were matched on intelligence with 25 individuals over 40 years of age. The two sets of attitude scale results were then correlated, keeping the two age groups separate. With various types of analysis the older adults showed less tendency to alter their responses. Marple (69) studied the effect of group and expert opinion upon the expressed opinions of three age groups. Three hundred high school students (mean age 17.7 years), 300 college students (mean age 22.2 years), and 300 adults (mean age 39.1 years) were tested twice with an opinion scale, the second test following the first by one month. One-third of each group responded the second time with no intervening special influence; a second third responded the second time after being informed of the original judgment of the group; and the third 100 of each group responded the second time after having been informed of the opinion of a group of experts. Under these several conditions the high school students shifted more in attitude than did the college students who in turn shifted more than did the adults. All groups tended to shift more to agree with group opinion than with expert opinion, though the latter also caused considerable shift. These studies clearly indicate that when deliberate attempts are made to change opinions and attitudes, the older adults are less responsive. Their attitudes seem more rigid and crystallized.

Ruch (94) suggested that the conservatism of older people might be explained on the basis of the differential decline in learning ability that he has elsewhere (95) demonstrated. Older adults in general learn less effectively than do younger groups, but they are especially handicapped in learning material opposed to their already established habits.

PERSONALITY AND ADJUSTMENT

Certain studies have been grouped together under the heading "personality and adjustment" either because "personality tests" were used in the investigations or because the scope of the studies was too broad to permit ready classification in other sections of the paper.

Masculinity-Femininity. Terman and Miles (112) have studied masculinity-femininity and related factors, using a specially designed "Attitude-Interest" scale which is differentially scored to yield a "masculinity-femininity" index. As age increased in the sample studied there was a consistent change toward femininity on the part of the males, and a lesser change in the same direction on the part of the females. The relationship between the M-F score and age was not the same throughout the life span, however. Before adolescence for men and before early maturity for women, age correlated positively with M-F scores, but after these ages the correlation was negative. As a group, men are never again as masculine after their thirties as they were in the eighth grade, high school or college. Strong's studies (102; 103, pp. 230-234) involving a

similar scoring of his interest blank show a similar tendency for both sexes to become more feminine as age increases, but Strong points out that sex differences are still marked in old age. The reversal in trend during the late teens or early twenties apparent in Terman's studies was not confirmed by Strong.

Changes in Adjustment: Personality Test Results. A number of studies relate to age differences in emotionality and neuroticism as measured by personality tests. Willoughby (126, 128) using a revision of the Thurstone Personality Schedule found wives to score as more emotional than spinsters and women to score as more emotional than men. Married and unmarried men differed little in test score. When the test results were analyzed with respect to age, early maturity and old age appeared to be the periods of greatest stress with a period of relative calm in between. There was a typical rise with age for introversion items (prefer quiet amusements, avoid crowds, prefer vacation in quiet place, prefer to spend odd moments reading). Willoughby is of the opinion that this does "not indicate any emotional disturbance, worry, anxiety, neuroticism, etc., but merely reflects something like a reorientation of interests with advancing age." This suggestion that the diagnostic significance of particular behavior (or test items) may vary with age is important. Most current personality tests are based on responses of people in their late teens or early twenties—a group that may be quite atypical compared to adults of more mature age. The wisdom, when such tests are used, of analyzing the data with reference to individual item responses as well as total test score is apparent.

In another article Willoughby (117) presents similar data on 504 unmarried women of superior social status and urban background. The curve of adjustment as related to age was very much like that described above, showing a rise from 15 up to the late 20's, a decline up to the climacteric, followed by a rise up to the early 60's. There was a slight decline or possibly stationary status in old age. Willoughby suggests that the first rise in the 20's may be associated with increasing tension from the life problems of sexual adjustment while the low level in middle life may reflect lessening of sexual tensions, relative remoteness of sexual possibilities, maximum earning power, and relative remoteness of incapacitating old age. The second rise up to the early 60's may reflect adjustments to old age.⁹

Several studies have investigated age differences in neuroticism and emotionality among teachers. Phillips and Greene (83) using the Bernreuter Personality Inventory with 143 women teachers found an initial rise in neuroticism among single teachers with the peak at the age of 30; thereafter the curve declined. Among married women there was a steady decline with increased age suggesting improved adjustment. Teachers who pursued active outdoor and social hobbies were better adjusted than those who pursued work-type and teaching hobbies. Peck (82), using the Thurstone Personality Schedule, and Boynton (7) using an inventory devised by himself, also show older teachers to earn better adjustment scores than younger teachers.

Pintner and his associates (84, 85) have reported results of testing deaf adults with the Bernreuter. A slight but statistically unreliable relationship with age but none with length of time deaf appeared. Simpson (95a) found no relationship between score on the Thurstone Personality Schedule and age in the case of 252 adult prisoners. C. C. Miles (71) reported no relationship be-

⁹ Elsewhere in a study of marital adjustment, Willoughby (125) reports a small and unreliable relationship between neuroticism and age. The younger women and the older men seemed to be the more neurotic.

tween Bernreuter scores and age in one paper, but elsewhere W. R. Miles (72) reported, apparently from the same study, no relationship *except* in the case of the dominance scale where an r of $-.20 \pm .04$ with age appeared. Commenting in this connection on the results of an unpublished study of younger and older college professors, W. R. Miles (72, p. 639) suggests that "self-depreciation and inferiority attitudes are exhibited or experienced by the large majority of older people."

Changes in Adjustment: Non-Test Evidence. Those studies mentioned above which suggest better adjustment with increased age up to a certain point (say the late 30's or early 40's) receive support from the Gluecks (23) in their study of later criminal careers. In fact aging (maturation) appeared to be the most significant of 63 factors investigated in explaining the decrease in criminality occurring among ex-prisoners. A rising trend in improvement in all aspects of activities accompanied the passage of time. However, those people who had not gained stability by 36 seemed unlikely to do so in any fundamental sense thereafter. There were, of course, important differences in the rate with which different people "age." The tendency to "settle down" noted in interest patterns and in the Gluecks' study may lie behind the better adjustment scores reported in the articles just reviewed.

Information regarding the degree to which farmers were adjusted to their way of living was collected by Mangus and Cottam (67). They found no age differences with respect to total way of life, but more older than younger adults indicated satisfaction with their farms and farming, with their living conditions, and with their social-recreational life. The younger adults were better satisfied with their health and the health of their families.

Happiness is an aspect of good adjustment. It will therefore be interesting to see what ages appear happiest in retrospect. The following figures indicate the percentages of two groups, one of New York state old people the other of Iowa old folk, who thought the different periods of life were the happiest:

	New York (Morgan, 74)	Iowa (Landis, 52) ¹⁰
Childhood (5-15 years)	14.5%	11.1%
Youth (15-25 years)	18.9	19.3
Young adulthood (25-45 years)	49.1	51.4
Middle age (45-60 years)	12.4	5.8
Later life (60 and up)	5.1	4.7
Undecided or No Data	7.7
No. of cases	370	450

It will be noted that the two studies are in rather close agreement, and both indicate that more old people find young adulthood to be happiest when looking back than any other age. However, two-thirds of the spinsters and bachelors in Landis's study (52), but only a third of the married people, said they were happiest in childhood and youth. This is perhaps suggestive of the emptiness of later years for single people since those who went on into marriage and parenthood numbered the young adult years as the most complete and happy. Watson (120) found no evidence for a relationship between happiness and age when he correlated present age with present happiness rating for several hundred graduate students ranging in age from 20 to over 60, and averaging 30 years. Un-

¹⁰ Exact figures were provided by Dr. Landis in a personal communication.

doubtedly the question "How happy are you now?" results in an evaluation of a given age different from the judgment obtained when the same age is seen in retrospect with the question "What part of life do you think the happiest?"

Inasmuch as "nervous" people are unstable or to some extent maladjusted, data on age incidence of nervousness are pertinent here.¹¹ Some relevant facts have been provided by Hamilton (29) who reported the relative frequency with which individuals of different ages seek out physicians for "nervous" problems. Two hundred nervous cases in a community of 30,000 population represented the group tabulated. The 20's, 30's, 40's, and 50's were represented with almost the same frequency, whereas the first, second, seventh, eighth, and ninth decades of life had relatively few cases. In short, from the 20's to the 60's no great change in frequency of nervousness appeared.

*Personality Change in the Menopause.*¹² The period of the menopause has often been considered a period of increased nervousness, emotionality and stress. Yet it is striking that in data already cited (Hamilton, 29) nervous women were encountered in the 40's when the menopause typically occurs with no greater frequency than in the 50's when it seldom appears. The data of Willoughby (126, 127, 128), it will be recalled, show the fifth decade of life (the 40's) to represent the calmest period of the adult years, and none of the other studies of personality here reviewed has given any suggestion of increased disturbance during that period. This would seem to belie the generally accepted notion of marked emotional changes during the menopause. Typical, on the other hand, of clinical observations are the following symptoms which have been obtained from articles dealing with the climacteric and which may thus be assumed to represent the type of symptom in that clinical syndrome:

Psychological Manifestations: Malaise, lack of interest, depressive states, indecision, hyperirritability, feelings of self-pity, fear of decreasing feminine attractiveness, nervousness, morbid worry, suspicion of husband, family, friends, feeling of inferiority, changes in mood, decreased memory, lessened power of concentration, weeping spells, ideas of self-destruction, a tendency to be easily worried and upset by trifles, fault-finding, lack of plasticity, exaggerated sense of responsibility, apprehensiveness, inattention to dress.

Physical Manifestations: Dull constant oppression above and left of sternum, sense of uneasiness throughout chest, attacks of angina-like pain, breathlessness unrelated to effort, long sighing respirations, paresthesia of various parts of the body, palpitation (or sense of it) with no change in heart beat, vague lower abdominal distress, irregularity and discontinuance of menstrual flow, decrease in libido, varying degrees of impotence, prostatic involvement, unstable vasomotor reactions, lowered metabolic rate, nocturnal sweating, headaches, dizziness, nausea, increase in weight, easy tiring after ordinary exertion, constipation.

Werner (124) has indicated the frequency with which such symptoms appeared in 96 menopause cases. The average age of onset of these symptoms was

¹¹ Since this review is concerned with what might be called "normal" personality changes, studies of age trends in mental disease have not been included. Numerous studies such as those by Malzberg (68) and Landis and Farwell (48) have been reported and are important in assessing the total picture of aging. Let it suffice at this point to say that as age increases rate of admissions to mental hospitals also increases, and different diseases show different peak years of incidence.

¹² This section deals with women. The question of climacteric in men has not yet been sufficiently investigated to be included and even the existence of such a period is questioned by many. The climacteric among males probably occurs at an older age than in women, involves less pronounced symptoms and fewer individuals.

40.8 years. The underlying conditions appears to be a complex endocrine crisis involving an imbalance brought about by cessation of ovarian function, the rate of cessation being a partial determiner of the severity of the symptoms. Psychological factors are also undoubtedly important in determining the presence and the degree of menopausal stress.

In weighing the clinical evidence regarding personality changes during the climacteric it must be remembered that most of the cases studied *sought* medical attention and thus are not representative of the general population. But such evidence cannot be ignored even though not in line with more systematic personality test studies. The only conclusion warranted at present is that more research is needed; certainly dogmatic statements regarding stress at this age are inappropriate. It is even possible that the "storm and stress" of the menopause will turn out to be the same type of will-o'-the-wisp as the traditional, but never really demonstrated, "storm and stress" of adolescence.

Factors Related to Good Adjustment. From time to time in this review there has been speculation as to reasons for age changes in adjustment. At this point several sets of research findings will be summarized, some relating to age differences in adjustment, others to factors related to adjustment in old age but which nonetheless grow out of earlier developmental trends.

That the cultural milieu in which an individual matures will affect his later adjustment has been suggested in a study by Gundlach (25). Although emotional stability was not correlated to any marked degree with age in his study, interesting trends appeared when the data were plotted with reference to the social conditions present when the subjects of a particular age reached social maturity. Thus more neuroticism appeared among the group who had had almost all their maturity since depression time, but who were brought up in the habits and attitudes of the 1920's. Fewer high neurotic scores were found among those who were able to get established as adults before the depression came but who were too young to have had the military experience of the first world war. This type of analysis is highly suggestive as to the causal factors behind apparent changes in neuroticism with age, and represents a real advance over usual age studies.

Reasons why old folks designated particular phases of life as happiest may give some insight into factors making for good adjustment. Most of the old people in Landis's Iowa study (50) mentioned marriage and children as the reason for naming young adulthood as happiest. In fact those who never married more frequently named youth rather than young adulthood as the happiest period and mentioned parties and social activities as basis for their choice. When asked the causes of their happiness more than half of Morgan's subjects (74) named family and personal relationships; also mentioned were interest in work, health, religion, money, travel, and independence. When asked what they missed most from their younger days, they most frequently mentioned deceased members of family, health and physical activity, work, social activities, or "missed nothing." Among the factors that seemed associated with happiness in Watson's study (120) were (a) enjoyment and success in work, (b) success in dealing with people, and (c) an attitude of "serious, deliberate, earnest, hardworking living rather than impulsive, light, amusing, dilettante-ism." Failure in love appeared to be the chief cause of unhappiness.

When old age arrives, what factors tend to differentiate those who are well adjusted from those who seem poorly adjusted? The studies by Landis (49, 51, 52) and by Morgan (74) are again the basic source of evidence though Conkey (13) and Lawton (56) have also reported pertinent findings. Both Landis and

Morgan arrived at an adjustment score based on subjects' rating of enjoyment of life, the extent to which they had enough to do to occupy their time, whether they had hobbies, time for visiting and were relatively free from worries. Both studies indicated that the better adjusted people have plenty of work to do (and like it), are in better health, have more social contacts, have hobbies and recreations, and would like to live their lives over again. It should be noted, of course, that some of these items also contributed to the "adjustment score" and in those instances the reported relationships are spuriously high. Landis points out that old women are happier and better adjusted than old men, attributing this to the fact that two-thirds of the males do not have enough to do. Retirement from one's regular job forces upon the male a more definite change in life activities than is true of the female. Conkey (13) stresses three factors as of great importance to good adjustment in old age: (a) strong or varied interests or activities, (b) economic independence or security, and (c) freedom from physical handicaps. Of these, interests are most important. Living in the past (e.g. reminiscing and keeping relics) seems to be a hindrance to good adjustment.

As might be expected good adjustment in old age is largely a product of good adjustment prior to old age. It is noteworthy that the better adjusted subjects in both Morgan's and Landis's studies more frequently wished to relive their lives, presumably because better adjusted people have a rosier picture to view in retrospect.

MOTIVATIONS, ASPIRATIONS, LIFE PHILOSOPHY

One of the most important changes that occurs as people grow older involves their drives to action. What things do people of different ages hold important; what are some of the major age differences in value systems; what do people live by and for at different ages? In general, little is known about these questions. Material on interests and attitudes presented earlier in this paper give some insights. In this section some further findings will be summarized: data regarding personal problems, wishes, sex drives, vocational drives, religious feelings, and general life patterns.

Personal Problems and Wishes. The kinds of problems people of different ages face and the things they wish for should give some insight into changing goals and purposes. In an effort to discover the problems of people Symonds (108, 109, 110) asked high school students, college students, and adult graduate students to rank fifteen life areas in terms of the degree to which each was a problem or an interest. Trends for adults as a group have been briefly described in an abstract (108) and age trends from 12 to 50 based on several of Symonds' studies have been presented by Shuttleworth (96, Figs. 317-318). A striking increase in interest in philosophy of life from 12 to 50 occurred and interest in mental health and civic affairs also increased. There was a decreasing interest in social amenities, and an increase (a peak at about 21) followed by a decrease in interest in love, courtship and marriage. "Money" seemed outstanding as a problem but was ranked about the same by those between 20 and 50. The sampling of cases of course leaves much to be desired. Graduate students in their forties are very apt to be individuals who have had their life plans disrupted or who have never found themselves, and hence have greater problems in the areas of "personal values" and "ambitions."¹³ But nonetheless, this study sug-

¹³ Osburn and Murphy (77) used Symonds' procedure with 170 adult "non-college" students enrolled in evening school. Certain differences between these and Symonds'

gests certain important changes in life motives: first the waxing and waning of interest in sex; second, the need for money and concern with occupation and material things; and third, an increased concern with "spiritual" and philosophical values.

Wilson (129) compared the wishes of two groups of elderly people with the wishes of children and college students. It was apparent that cultural and socioeconomic backgrounds and chronological age affect people's wishes in early and late life. Among the most frequent wishes of the older group were general benefits for self (health, peace of mind, to live with family, etc.), money and wealth, companionship, activities, sports, diversions. In general the wishes of the old were more improbable of attainment compared to the wishes of college students.

A systematic analysis of wishes and personal problems based on a more representative sample of a wider age range should throw considerable light on adult motivation.

Sex Drives and Physical Change. Changes with age in sex drives suggested by Symonds' study are clearly demonstrated in studies of sexual activity at various ages. Terman (111) and Pearl (81) have shown frequency of coitus to drop steadily with increased age, and other studies (15, 16) indicate auto-erotic practices to become less frequent with advancing age. It is perhaps unnecessary to point out that sex life does not end with the reproductive life, both coitus and auto-erotic practices being reported in ages past the climacteric. Hamilton and MacGowan (30) have given some indication of the frequency of love affairs up to about 45. The peak ages were the late teens and the early twenties, with decreasing frequency to the forties. There was a suggestion of a second peak in the 40's, especially for women. Whether this is due to a woman's 40th birthday giving her "a more frantic sense than it gives the man that romance is passing with her youth" has yet to be checked by research,—as indeed has the whole question of the romantically dangerous 40's.

In connection with this last point (and possibly significant as a background for changes in other motives) is the fact that subjective signs of growing old are apt to involve physical symptoms twice as frequently as mental symptoms. According to Jones (40), who discussed some findings by Giese, the average age of becoming subjectively old is 49 years, but symptoms were first noted as young as 18 by one person and as old as 82 by another! Changes in motor ability, sex, circulation, metabolic activity, were among the physical symptoms. The more educated people reported a higher percentage of such mental signs as noticing that others thought them old, changes in intellectual interests, tendencies to reminisce.

*Vocational Drives and Satisfaction.*¹⁴ Material aspects of life—money and vocational success—represent exceedingly strong motives in the American culture. It will be the purpose of this section to examine data on vocational restlessness and satisfaction, and on productivity that has depended upon personal drive and initiative, in an effort to note changes with age in vocational motives.

The urge toward success and personal establishment in society for men ap-

findings were evident. "Philosophy of life," for example, was ranked about the same as a problem by both groups, but Symonds' college group appeared more interested in this life area.

¹⁴ This section concerns men primarily. Most of the data relates to males, but Symonds (108) points out that his data indicate a greater "passivity and receptivity" on the part of women. In many aspects of age change it appears that different trends will characterize the two sexes.

peared in Symonds' data (108) to be strongest in late adolescence. The studies by Lehman and his associates (62, 63) suggest, however, that the drive for vocational accomplishment is strongest in the thirties and forties.¹⁵ It is in those decades at least that outstanding people in various lines of work tend most frequently to patent inventions, to write books, to publish scientific articles, or to make new discoveries. And such productivity, it will be noted, is the sort that results largely from personal ambition and initiative and thus might most clearly reveal age differences in professional or vocational drive. Vocational drive does not reach a high level and then continue on at that plane; beyond a certain point a gradual abatement sets in. Thus Blum and Russ (6) found in a study of attitudes toward work incentives that the desire for vocational advancement is less important as age increases, compared for example with the desire for security, and Strong's Vocational Interest Test data (100) indicate a lessened desire for vocational advancement. In an analysis of the reasons why adults took home study course, Smith (97) found that those between 15 and 35 pursued work for specific vocational purposes, while those between 40 and 59 were beginning to take courses for non-vocational reasons, and those over 60 mentioned vocational reasons practically not at all.

Vocational restlessness as indicated by labor turnover figures might also give insight into age of vocational drive. Kitson (45) found the ages of greatest instability to occur in the early twenties and the early forties, with the ages of peak stability lying between 26 and 40. Kitson offers three possible explanations for increased instability in the forties: (a) ending of responsibilities for rearing children and paying for a home, (b) recognition of the fact that if a man is to change his job at all it must be before he becomes too old, (c) a general restlessness growing out of endocrine and other organic changes associated with the climacteric. Undoubtedly, too, much of this restlessness grows out of unsatisfied vocational motives, complicated no doubt by such factors as Kitson mentions. Wren's data (131) on vocational aspirations and status of adults of different ages are pertinent in this connection. Those of higher vocational status were older adults, but the aspirations of the entire group were high. Young adults have aspirations fully as high as those of older adults, but their actual status is less. Though increased age tends to close the gap between aspirations and status, it is not completely closed even for the older groups. For many the passage of time undoubtedly brings increased awareness that early aspirations will in all likelihood not be attained, resulting in increased vocational restlessness.

Despite a general rise in vocational status with age, many adults are dissatisfied. Paterson and Stone (80) found that 45 per cent of 700 adults would choose a different vocation if they could start again at 18. No clear cut relationship between age and job satisfaction is apparent in the several studies available. Super (105) found fluctuations from age to age with a general over-all tendency toward increased satisfaction. Hoppock (36) also found increased satisfaction among older workers, but Fryer (21a) and Kornhauser and Sharp (46) found no age trends. Hoppock (37), after reviewing other conflicting reports, concludes that the many inconsistencies in job-satisfaction data grow out of the fact that the factors are so varied that each situation must be viewed separately. The importance of vocational adjustment to the general adjustment of individuals and their families is sufficient to justify considerable further expenditure of research effort.

¹⁵ No attempt is made in this paper to review studies of age differences in productivity.

Spiritual and Cultural Values. In later maturity concern over job and materialistic matters seems to lessen, and interest shifts to matters of philosophy, religion, and culture. Symonds (96), it will be recalled, found philosophy of life to be a greater interest at 50 than at 15; Tucker (116) and Hall and Robinson (28) found more favorable attitudes toward religion among older age groups; and Smith (97) found older people taking adult evening courses choosing courses of cultural rather than vocational value. Heidler and Lehman's study (33) of literary productions indicates that in the 50's and 60's philosophical, historical, biographical, and critical prose is most frequently written; the suggestion here is of an overall evaluation of life by older people. And G. S. Hall (26) believed that as people become older they become increasingly interested in the betterment of mankind.

Philosophical and religious concerns are of course extremely complex matters, and very few studies have attempted to analyze in detail the nature of the age changes involved. Kingsbury (44) reports the reasons people of different ages give for going to church. With increasing age the church appears less important as a place to hear music and literature, as a place to make friends, or as a help in formulating a philosophy of life. There was a marked increase with age in a desire "to keep alive the spirit of Christ" and increasing concern with assurance regarding immortality. The latter had been important in youth, but apparently lay dormant between 25 and 50, when people possibly were more concerned with the here-and-now and its attendant responsibilities. In a study published in 1900, Starbuck (99) also found evidence of an increased concern regarding immortality. There was an increase both in *belief in* and *rejection of* immortality with age, which was interpreted by Starbuck as indicating that immortality is a problem that thrusts itself to the fore and must be decided one way or the other. In this study belief in God and in religion as a life within increased with age, as did also the rejection of certain beliefs as unessential. Feelings of dependence, reverence, and oneness with God also showed age increases for both sexes, though more strikingly in the case of women. Various life motives were analyzed by Starbuck and grouped into "altruistic" and "self-perfection" motives; both types tended to become more important with increased age in the case of women, but tended to decrease among men. In explanation for the opposite trend for men, Starbuck suggests that males appreciated ideals more in their youth and hence tended to record them more readily then.

Meager as the findings here summarized are, they are sufficient to indicate that important changes occur with increased age in what might be termed "philosophy of life." This should prove a fascinating field for research.

Life Patterns. Certain trends in aspects of motivation have been presented. It is possible to discern a general pattern in the lives of people? Bühler (9, 10) has attempted to mark out some of the major trends that exist in total life patterns by analyzing approximately 300 biographies of people of various ages and professions. She reached the conclusion¹⁴ that events, experiences, and attainments show a period of expansion, of stability, and of restriction, which parallel the biological curve though lagging somewhat behind. In individuals where

¹⁴ Rubinow (91) published in English a synopsis of Bühler's monograph (written in German) in which were presented the supporting data for these conclusions. Feldman (21) has described what seems to him on an empirical basis to constitute the major phases of life and their characteristics. G. S. Hall (26) has written a volume recording his thoughts on growing old.

spiritual and mental factors predominate the high point is deferred to the end or latter part of life; and where life activities are dominated by physical factors (strength, beauty), the peak is reached earlier and the psychological curve more closely parallels the biological curve. Bühler notes several phases of the life span:

1. In early life (adolescence, young adulthood) activities have a preparatory or provisional character (non-specified activities);
2. at about 30 begins the period of "specification and definiteness in work" when life choices of mates and job have been made and energies are rather well directed;
3. at about 45 comes a period of testing results and accomplishments—whether one has attained the position, success, income for which he strove;
4. next is a period wherein striving for the desired success dominates the life picture.
5. Finally there is a period of looking back on life.

This general pattern fits in well enough with common observations, and might very well serve as a framework about which to organize much of the data contained in this review. The pattern was arrived at in a very subjective manner, however, and its greatest contribution lies in providing hypotheses to be tested in more objective fashion.

GENERAL CONSIDERATIONS

The plan of this review thus far has been to summarize with little critical comment the available facts. Attention may now well be directed to some of the shortcomings of the data and to some of their implications.

In the main, this paper has been concerned with cross-sectional research, with age *differences* rather than with age *changes*. It is well to keep this fact in mind because representative samples of the population have seldom been obtained, and it is probable that those who make themselves available for study at different ages are selected on progressively different bases. Trends may appear which reflect the selective factors operating rather than reveal true age differences or changes. A differential selection may also tend to obscure personality changes related to a particular period, e.g. the menopause. This source of error has been overlooked by many investigators who interpret age differences much too literally, and indeed the error is difficult to avoid when discussing age data. Often in this paper reference has been made to age "changes" when, more accurately, "differences between age groups" is meant.

Assuming that representative samples of the various age groups have been obtained, a further common error lies in the assumption that age alone is the psychologically significant variable. It is often forgotten, for example that along with age go differences in cultural backgrounds and experience, and that age trends in psychological (or anthropometric) data must thus be analyzed in the light of cultural origins,—a point which the present writer has elaborated elsewhere (47). Since different age trends may occur in different sub-cultures, it is desirable that investigators carefully describe the group studied in reporting research. Certainly it is true that growing old is a much different experience in a culture where the old have prestige compared to aging in a culture where the old are deemed useless. It is probable too that as research accumulates different (perhaps even opposite) trends will be found to characterize the two sexes, developing as they do under differing cultural influences. There is always the danger of generalizing on too little evidence, especially when, as is the case in the psychology of adult life, studies are so few and so limited to particular cultural groups that conflicting facts often have not had opportunity to appear.

It is perhaps to be expected that the first explorers in an area of research will concern themselves with discovering the general trends, and leave to later workers the task of identifying the conditions that cause variations in those trends. Very little effort has thus far been directed toward discovering either the background conditions for adult personality change or the interrelations among various personality traits at the different adult ages.¹⁷ The need for such studies is obvious. It would be desirable to know, for instance, whether the maintenance of active interests will result, as seems likely, in the maintenance of mental alertness and willingness to accept change. The following types of factors might fruitfully be studied with reference to their relationships to personality change: sex, cultural level, intelligence, occupation, economic status, glandular and other organic changes, various life demands (as, for example, occupational and financial pressures which seem sometimes to crowd out other concerns), marital status, presence of children. Some hints as to the influence of such factors on personality change are provided in studies reviewed here. It is to the credit of a number of investigators (notably Strong, 100, 103; Thorndike, 113; Willoughby, 128) that they have reported age differences for individual items, thus permitting at least an "inspectional" weighing of the relative contribution of various factors.

Long-time longitudinal studies will undoubtedly go a long way toward eliminating some of the difficulties just outlined, and should provide invaluable information not otherwise obtainable.¹⁸ Such studies are, however, expensive and slow in yielding returns. While the foundations should be laid for later follow-up, there is an immediate need for data on adult years. Improved cross-sectional studies are probably most practical and should contain no serious weakness if adequate precautions are taken to obtain representative samples of various age groups, to obtain a variety of data on each subject, and to analyze the findings in detail. In this connection, it may be well to stress the desirability of using finer age groupings than have been used in studies to date. Grouping by ten years, or even larger intervals, is apt to obscure important differences and give only general trends that have limited value for understanding development. It is not unlikely that in certain phases of adult life changes are sufficiently rapid to make much finer age groupings (perhaps even by single years) desirable.

A final comment. Studies summarized in this paper might well be considered exploratory. They have sampled various procedures with different groups, and often have been more significant in the hypotheses suggested than in the findings themselves. A considerable amount of spade work has been done, and certain generalizations are already well based in research findings; yet, in gen-

¹⁷ Probably because of the difficulties in obtaining the cooperation of adults investigators have seldom obtained the necessary data from the same people to permit such analyses. In this connection the objections of one group of adults to taking the Bernreuter Personality Inventory, reported by Hampton (31), are of interest.

¹⁸ Desirable as longitudinal studies are, they do entail certain serious problems. When a study is pursued over a 50 to 75 year period, it will be found extremely difficult to separate age change from cultural change (periodic cross-sectional checks will, however, be of assistance) and psychological tests will present serious difficulties. The latter relate sufficiently to the contemporary culture to be badly outdated, say 50 years from now. Where such tests are used it will be necessary to compare the same individuals at different ages with different or obsolete tests, a procedure little better than comparing different individuals with the same test as is done in cross-sectional studies.

eral, the data available are so meager that almost any systematic study can make a worthwhile contribution. It is hardly necessary to point out that the theoretical and practical implications of research in maturity and old age are sufficiently great to warrant considerable expenditures of time and effort. Much is to be learned regarding human motivation, for example, by viewing it against the background of lifespan changes in physical energy and in life demands, and any developmental phase (as adolescence) can be better understood when studied in the perspective of a broader age context. Psychology has contributed immeasurably to the effectiveness of elementary and secondary education by providing information (and emphasizing its significance) regarding the learner, his goals, his needs, interests, and personal traits. Psychology of adult life should make a similar contribution to adult education and should provide a background for realistic and effective programs of rehabilitation, postwar community planning, social security, adult counseling. In a society with increasing proportions of the population in the adult and older age brackets, such programs will become more and more important.

SUMMARY

The data summarized in this paper are diverse and frequently inconsistent, though on certain issues the convergence of evidence is striking. The following points represent an attempt to cut through the inconsistencies in the interest of identifying some of the major age trends.

1. Interests change rapidly to about 25 years of age when a reversal in trend occurs; change is then slower and in the opposite direction. Late adolescence and the early twenties represent the age of vigorous physical activity and sex-social interests. Thereafter the trend is toward non-competitive, sedentary, relatively solitary activities.

2. Interest data also reveal a tendency on the part of adults to dislike activities involving the disruption of established habits or the undertaking of new and varied activities. This disinclination to learn may have greater implications for educators of adults than those growing out of evidence regarding changing ability to learn.

3. The relationship between active participation and good adjustment is apparent at any age. In studies of good adjustment in old age the maintenance of active interests and having sufficient work stand out as of first rank importance. The contribution that active interests make to the maintenance of mental youth needs investigating.

4. Old people tend to be more conservative and more traditional in their beliefs, but the age differences are not so striking as one might expect. Older people show a pronounced tendency to resist changing their beliefs.

5. Studies of neuroticism and emotionality suggest improved adjustment during the 30's and early 40's with a trend toward poorer adjustment thereafter. However, in view of the general shift in interest patterns one may well question the diagnostic values assigned personality test items on the basis of college student or young adult norms. The general re-orientation of interests may result in responses being "normal" which at an earlier age were symptomatic of emotionality or neuroticism. New tests for adults of different ages, or new standardizations of present tests are needed. It is also suggested that age studies employing personality tests should carry the analysis of trends to individual items as well as mean scores.

6. Data on job satisfaction are somewhat more inconsistent than other data,

but there appears to be a tendency for increased vocational restlessness and dissatisfaction to occur in the 40's. This represents an important area for further detailed research.

7. It has long been assumed that the period of menopause or climacteric represents a period of physiological and psychological disturbances. Quantitative studies bearing on the latter are quite consistent in revealing no undue emotional disturbance nor increased rate of personality change to occur. However, in view of clinical opinion to the contrary, more research is needed.

8. The available facts on the motivations of people at different ages are extremely few. Perhaps no area of the psychology of adult life is so in need of careful study. Among the major trends now apparent are (a) the waxing and waning of the sex drive and related social interests, (b) the strong vocational pressure in young adulthood and later last minute efforts to attain success, and (c) the later importance of philosophy of life and cultural values.

9. Individual differences among adults of any age are extremely great, and age differences in many instances are strikingly less than differences related to such factors as sex, occupation, education.

BIBLIOGRAPHY¹⁰

1. ACHESON, EUNICE M. A study of graduate women's reactions and opinions on some modern social attitudes and practices. *J. abnorm. soc. Psychol.*, 1933-34, 28, 42-63.
2. ALLARD, LUCILE. *A study of the leisure activities of certain elementary school teachers of Long Island*. Teach. Coll. Contr. Educ., No. 779, New York: Bur. of Publ., Teach. Coll., Columbia Univ., 1939.
3. ANDERSON, A. & DVORAK, B. Differences between college students and their elders in standards of conduct. *J. abnorm. soc. Psychol.* 1928-29, 23, 286-292.
4. BEAN, C. H. The psychology of adherence to the old and of acceptance of the new, *J. soc. Psychol.*, 1933, 4, 340-352.
5. BILLS, M. A. Stability of office workers and age at employment. *J. Person. Res.*, 1926-27, 5, 475-477.
6. BLUM, M. L. & RUSS, J. J. A study of employee attitudes toward various incentives. *Personnel*, 1942, 19, 438-444.
7. BOYNTON, P. L. An analysis of the responses of women teachers on a personality inventory. *Peabody J. Educ.*, 1942, 20, 13-19.
8. BRIGGS, E. S. How adults in Missouri use their leisure time. *Sch. & Soc.*, 1938, 47, 805-808.
9. BUHLER, CHARLOTTE. *Der menschliche Lebenslauf als psychologisches Problem*. Leipzig: Verlag von S. Hirzel, 1933.
10. BUHLER, CHARLOTTE. The curve of life as studied in biographies. *J. appl. Psychol.*, 1935, 19, 405-409.
11. CANTRIL, H. & ALLPORT, G. W. *The psychology of radio*. New York: Harpers, 1935.
12. CASON, H. Common annoyances: a psychological study of every-day aversions and annoyances. *Psychol. Monogr.*, 1930, 40, No. 2, 218.
13. CONKEY, FRANCES. The adaptation of fifty men and women to old age. *J. Home Economics*, 1933, 25, 387-389.
14. COWDRY, E. V. (Ed.) *Problems of ageing* (2nd ed.) Baltimore: Williams & Wilkins, 1942.

¹⁰ Some references are listed here because of the general interest they may have for the reader, even though not mentioned specifically in the text.

15. DAVIS, K. B. A study of certain auto-erotic practices. *Ment. Hyg., N. Y.*, 1924, 8, 668-723; 1925, 9, 28-39.
16. DICKINSON, R. L. & BEAM, L. *The single woman*. Baltimore: Williams & Wilkins, 1934.
17. DUFFY, ELIZABETH. Attitudes of parents and daughters toward war and toward the treatment of criminals. *Psychol. Rec.*, 1941, 4, 366-372.
18. EDMAN, MARION. Attendance of school pupils and adults at moving pictures. *Sch. Rev.*, 1940, 48, 753-763.
19. ELDRIDGE, S. *Public intelligence: a study of the attitudes and opinions of voters*. Lawrence: Univ. Kansas, Dept. of Journalism Press, 1935.
20. FARNSWORTH, B. K. *A study of the reading habits of adults*. Unpublished Master's Thesis, Utah Agric. Coll., 1925.
21. FELDMAN, S. Origins of behavior and man's life-career. *Amer. J. Psychol.*, 1941, 54, 53-63.
- 21a. FRYER, D. Industrial dissatisfaction. *Industr. Psychol.*, 1926, 1, 25-29.
22. GERBERICH, J. R. & THALHEIMER, J. A. Reader interests in various types of newspaper content. *J. Appl. Psychol.*, 1936, 20, 471-480.
23. GLUECK, S. & GLUECK, ELEANOR. *Later criminal careers*. New York: Commonwealth Fund, 1937.
24. GRAY, W. S. & MUNROE, RUTH. *The reading interests and habits of adults*. New York, 1929.
25. GUNDLACH, R. H. Emotional stability and political opinion as related to age and income. *J. Soc. Psychol.*, 1939, 10, 577-590.
26. HALL, G. S. *Senescence: The last half of life*. New York: Appleton, 1922.
27. HALL, O. M. Attitudes and unemployment. *Arch. Psychol., N. Y.*, 1934, 25, No. 165, 65.
28. HALL, W. E. & ROBINSON, F. P. The role of reading as a life activity in a rural community. *J. appl. Psychol.*, 1942, 26, 530-542.
29. HAMILTON, G. V. Changes in personality and psychosexual phenomena with age. In E. V. Cowdry, (Ed.), *Problems of ageing*, (2nd Ed.) Baltimore: Williams & Wilkins, 1942. Pp. 810-831.
30. HAMILTON, G. V. & MACGOWN, K. *What is wrong with marriage*. New York: Albert & Chas. Boni, 1929.
31. HAMPTON, P. J. Objections of a group of grocers to taking the Bernreuter Personality Inventory. *J. soc. Psychol.*, 1942, 13, 159-161.
32. HARPER, M. H. *Social beliefs and attitudes of American educators*. Teach. Coll. Contr. Educ., No. 294, New York: Bur. of Publ., Teach. Coll., Columbia Univ. 1927.
33. HEIDLER, J. B. & LEHMAN, H. C. Chronological age and productivity, various types of literature. *English J. (College Ed.)*, 1937, 26, 294-304.
34. HOFSTÄTTER, P. R. Tatsachen und Probleme einer Psychologie des Lebenslauf. *Z. angew. Psychol. u. Charakterkunde*, 1938, 53, 273-333.
35. HOPPOCK, R. Age and job satisfactions. *Psychol. Monogr.*, 1936, 47, No. 212, 115-118.
36. HOPPOCK, R. *Job satisfaction*. New York: Harpers, 1935.
37. HOPPOCK, R. & SHAFFER, R. H. Job satisfaction: researches and opinions of 1940-1941. *Occupations*, 1943, 21, 457-463.
38. JOHNSON, B. L. Adult reading interests as related to sex and marital status. *Sch. Rev.*, 1932, 40, 33-43.
39. JOHNSON, B. L. Children's reading interests as related to sex and grade in school. *Sch. Rev.*, 1932, 40, 257-272.
40. JONES, L. W. Personality and age. *Nature (London)*, 1935, 136, 779-782.

41. JONES, V. Ideas on right and wrong among teachers and children. *Teach. Coll. Rec.*, 1928, 30, 529-541.
42. JONES, V. Disagreement among teachers as to right and wrong. *Teach. Coll. Rec.*, 1929, 31, 24-36.
43. KELLY, GRACE O. *Woodside does read!* Jamaica, New York: Queens Borough Library, 1935.
44. KINGSBURY, F. A. Why do people go to church? *Relig. Educ.*, 1937, 32, 50-54.
45. KITSON, H. D. *The psychology of vocational adjustment*. Philadelphia: J. B. Lippincott, 1925.
46. KORNHAUSER, A. W. & SHARP, A. A. Employee attitude: suggestions from a study in a factory. *Person. J.*, 1932, 10, 393-404.
47. KUHLEN, R. G. Social change: a neglected factor in psychological studies of the life span. *Sch. & Soc.*, 1940, 52, 14-16.
48. LANDIS, C. & FARWELL, J. E. Trend analysis of age at first admission, age of death and years of residence for state mental hospitals. *J. abnorm. soc. Psychol.*, 1944, 39, 3-23.
49. LANDIS, J. T. The sunny side of "65." *Iowa Farm Economist*, 1941, 11-13.
50. LANDIS, J. T. Hobbies and happiness in old age. *Recreation*, 1941-42, 35, 607.
51. LANDIS, J. T. Factors contributing to the dependency of rural old people. *Rur. Sociol.*, 1942, 7, 208-210.
52. LANDIS, J. T. Social-psychological factors of aging. *Social Forces*, 1942, 20, 468-470.
53. LANDIS, J. T. What is the happiest period of life. *Sch. & Soc.*, 1942, 55, 643-645.
54. LAWTON, G. A long-range research program in the psychology of old age and ageing. *J. of soc. Psychol.*, 1940, 12, 101-114.
55. LAWTON, G. Psychological guidance for older persons. In E. V. Codwry (Ed.), *Problems of aging*, (2nd. Ed.) Baltimore: Williams & Wilkins, 1942. Pp. 785-809.
56. LAWTON, G. Happiness in old age. *Ment. Hyg., N. Y.*, 1943, 27, 231-237.
57. LAWTON, G. (Ed.) New goals for old age. New York: Columbia Univ., 1943.
58. LAWTON, G. (Chairman) and others. Old age and aging, the present status of scientific knowledge. *Amer. J. Orthopsychiat.*, 1940, 10, 27-87.
59. LAWTON, G. (Chairman) and others. Psychological problems of later maturity. *Amer. J. Orthopsychiat.*, 1944, 14, 266-284.
60. LAZARSFELD, P. F. *Radio and the printed page*. New York: Duell, Sloan, & Pearce, 1940.
61. LAZARSFELD, P. F. & WYANT, R. Magazines in 90 cities—who reads what? *Publ. Opin. Quart.*, 1937, 1, 29-41.
62. LEHMAN, H. C. Man's most creative years: then and now. *Science*, 1943, 98, 373-399.
63. LEHMAN, H. C. & GAMERTSFELDER, W. S. Man's creative years in philosophy. *Psychol. Rev.*, 1942, 49, 319-343.
64. LORGE, I. Attitude stability in older adults, *Psych. Bull.*, 1936, 33, 759. (Abstract).
65. LORGE, I. The Thurstone Attitude Scales: II, The reliability and consistency of younger and older intellectual peers. *J. soc. Psychol.*, 1939, 10, 187-208.
66. LORGE, I. Intellectual changes during maturity and old age. *Rev. Educ. Res.*, 1941, 11, 553-561.
67. MANGUS, A. R. & COTTAM, H. R. Level of living, social participation, and adjustment of Ohio farm people. Wooster, Ohio: Ohio Agric. Exp. Sta., Bull. 624, 1941.
68. MALZBERG, B. Statistical study of age in relation to mental disease. *Ment. Hyg., N. Y.*, 1935, 19, 449-476.

69. MARPLE, C. H. The comparative susceptibility of three age levels to the suggestion of group versus expert opinion. *J. soc. Psychol.*, 1933, 4, 176-186.
70. MAXHAM, HELEN K. A study of the viewpoints of women of different age groups. *J. genet. Psychol.*, 1944, 64, 311-315.
71. MILES, CATHERINE. Age and certain personality traits of adults. *Psychol. Bull.*, 1933, 30, 570. (Abstract).
72. MILES, W. R. Age and human society. Chap. 15. In Carl Murchison, (Ed.), *Handbook of social psychology*, Worcester: Clark Univ. Press, 1935. Pp. 596-682.
73. MILES, W. R. Psychological aspects of ageing. In E. V. Cowdry (Ed.), *Problems of ageing*. (2nd. Ed.) Baltimore: Williams & Wilkins, 1942. Pp. 756-784.
74. MORGAN, M. The attitudes and adjustments of recipients of old age assistance in upstate and metropolitan New York. *Arch. Psychol.*, N. Y., 1937, 30, No. 214, 131.
75. NESTRICK, W. V. *Constructional activities of adult males*. Teach. Coll. Contr. Educ., No. 780, New York: Bur. Publ., Teach. Coll., Columbia Univ., 1939.
76. NEWCOMB, T. & SVEHLA, G. Intra-family relationships in attitude. *Sociometry*, 1937-1938, 1, 180-205.
77. OSBURN, W. Q. & MURPHY, F. E. A comparative study in problems and interests of adult students. *Sch. & Soc.*, 1938, 47, 61-64.
78. PACE, C. R. *They went to college: a study of 951 former university students*. Minneapolis: Univ. Minnesota Press, 1941.
79. PARSONS, R. B. *A study of adult reading*. Unpublished Master's Thesis, Department of Education, Univ. Chicago, 1923.
80. PATERSON, D. G. & STONE, C. H. Dissatisfaction with life among adult workers. *Occupations*, 1942, 21, 219-221.
81. PEARL, R. *The biology of population growth*. New York: A. A. Knopf, 1925.
82. PECK, L. A study of the adjustment difficulties of a group of women teachers. *J. educ. Psychol.*, 1936, 27, 401-416.
83. PHILLIPS, W. S. & GREENE, J. E. A preliminary study of the relationship of age, hobbies, and civil status to neuroticism among women teachers. *J. educ. Psychol.*, 1939, 30, 440-444.
84. PINTNER, R. Emotional stability of the hard of hearing. *J. genet. Psychol.*, 1943, 43, 293-311.
85. PINTNER, R., FUSFELD, I. & BRUNSCHWIG, LILY. Personality tests of deaf adults. *J. genet. Psychol.*, 1937, 51, 305-327.
86. POLLAK, O. Conservatism in later maturity and old age. *Amer. sociol. Rev.* 1943, 8, 175-179.
87. PRESSEY, S. L., JANNEY, J. E. & KUHLEN, R. G. *Life: a psychological survey*, New York: Harpers, 1939.
88. QUETELET, A. *Sur l'homme et le développement de ses facultés*. 2 vol. Paris: Bachelier, Imprimeur-Libraire, 1835, Vol. I, 327; Vol. II, 327.
89. ROSS, C. L. Interests of adults and high school pupils in newspapers reading. *Sch. & Soc.*, 1928, 27, 212-214.
90. RUBIN-RABSON, G. The influence of age, intelligence, and training on reactions to classic and modern music. *J. gen. Psychol.*, 1940, 22, 413-429.
91. RUBINOW, OLGA. The course of man's life—a psychological problem. *J. abnorm. soc. Psychol.*, 1933-34, 28, 207-215.
92. RUCH, F. L. Adult learning. *Psychol. Bull.*, 1933, 30, 387-414.
93. RUCH, F. L. Adult intelligence. In *Encyclopedia of educational research* (Ed. W. S. Monroe), New York: Macmillan, 1941. Pp. 29-32.

94. RUCH, F. L. The differential decline of learning ability in the aged as a possible explanation of their conservatism. *J. soc. Psychol.*, 1934, 5, 329-337.
95. RUCH, F. L. The differentiative effects of age upon human learning. *J. gen. Psychol.*, 1934, 11, 261-286.
- 95a. SIMPSON, R. M. Psychoneurotic inventory of penitentiary inmates. *J. soc. Psychol.*, 1934, 5, 56-64.
96. SHUTTLEWORTH, F. K. *The adolescent period: A graphic and pictorial atlas*. Monogr. Soc. Res. Child Developm., 1938, 3, No. 3, 246. Figs. 316 & 317.
97. SMITH, G. B. *Purposes and conditions affecting the nature and extent of participation of adults in courses in the home study department of Columbia University, 1925-1932*. Teach. Coll. Contr. Educ., No. 663, New York: Bur. of Publ., Teach. Coll., Columbia Univ. 1935.
98. SOROKIN, P. A. & BERGER, C. Q. *Time-budgets of human behavior*. Cambridge: Harvard Univ. Press, 1939.
99. STARBUCK, E. D., *The psychology of religion*. New York: Scribners, 1900.
100. STRONG, E. K., JR. *Change of interests with age*. Stanford University: Stanford Univ. Press, 1931.
101. STRONG, E. K., JR. Interest maturity. *Person. J.*, 1933-34, 12, 77-90.
102. STRONG, E. K., JR. Interests of men and women. *J. soc. Psychol.*, 1936, 7, 49-67.
103. STRONG, E. K., JR. *Vocational interests of men and women*. Stanford University: Stanford Univ. Press, 1943.
104. SULLIVAN, J. C. *A study of the social attitudes and information on public problems of women teachers in secondary schools*. Teach. Coll. Contr. Educ., No. 791, New York, Bur. of Publ., Teach. Coll., Columbia Univ., 1940.
105. SUPER, D. E. Occupational level and job satisfaction. *J. appl. Psychol.*, 1939, 23, 547-564.
106. SUPER, D. E. *Avocational interest patterns*. Stanford University: Stanford Univ. Press, 1940.
107. SUPER, D. E. Avocations and vocational adjustment. *Character & Pers.*, 1941-42, 10, 51-61.
108. SYMONDS, P. M. Changes in problems and interests with increasing age. *Psychol. Bull.*, 1936, 33, 789.
109. SYMONDS, P. M. Life problems and interests of adolescents. *Sch. Rev.*, 1936, 44, 506-518.
110. SYMONDS, P. M. Life problems and interests of adults. *Teach. Coll. Rec.*, 1936, 38, 144-151.
111. TERMAN, L. M. *Psychological factors in marital happiness*. New York: McGraw-Hill, 1938.
112. TERMAN, L. M. & MILES, G. C. *Sex and personality*. New York: McGraw-Hill, 1936.
113. THORNDIKE, E. L. *Adult interests*. New York: Macmillan, 1935.
114. THORNDIKE, E. L. The interests of adults: I. The permanence of interests. *J. educ. Psychol.*, 1935, 26, 401-410.
115. THORNDIKE, E. L. The interests of adults: II. The interrelations of adult interests. *J. educ. Psychol.*, 1935, 26, 497-507.
116. TUCKER, A. G. Some correlates of certain attitudes of the unemployed. *Arch. Psychol.*, N. Y., 1940, 35, No. 245, 72.
117. WAPLES, D. *Research memorandum on social aspects of reading in the depression*. Bull. No. 37. New York: Social Science Research Council, 1937.
118. WAPLES, D. & TYLER, R. W. *What people want to read about*. Chicago: Univ. Chicago Press, 1931.

119. WARNER, W. L. & LUNT, P. S. *The social life of a modern community*. New Haven: Yale Univ. Press, 1941.
120. WATSON, G. Happiness among adult students of education. *J. educ. Psychol.*, 1930, 21, 79-109.
121. WATSON, G. Morale during unemployment. In Goodwin Watson (Ed.), *Civilian morale*. Boston: Houghton-Mifflin, 1942. Pp. 273-348.
122. WEISENBERG, T. H., ROE, ANNE & MCBRIDE, K. E. *Adult intelligence*. New York: Commonwealth Fund, 1936.
123. WELLES, H. H. *The measurement of certain aspects of personality among hard of hearing adults*. Teach. Coll. Contr. Educ., No. 545, New York: Bur. Publ. Teach. Coll., Columbia Univ., 1932.
124. WERNER, A. A. Syndrome accompanying deficiency or absence of the ovarian follicular hormone: study of 197 cases. *Endocrinology*, 1935, 19, 695-700.
125. WILLOUGHBY, R. R. Neuroticism in marriage. *J. soc. Psychol.*, 1935, 5, 3-36, 467-499; 1935, 6, 397-436; 1936, 7, 19-48.
126. WILLOUGHBY, R. R. Emotionality as a function of age, sex, and conjugal condition. *Psychol. Bull.*, 1935, 32, 728 (abstract).
127. WILLOUGHBY, R. R. The emotionality of spinsters. *Characters & Pers.*, 1937, 5, 215-223.
128. WILLOUGHBY, R. R. The relationship to emotionality of age, sex, and conjugal condition. *Amer. J. Sociol.*, 1938, 43, 920-921.
129. WILSON, F. T. Expressed wishes of elderly persons, college men, and birthday wishes of first grade children. *J. genet. Psychol.*, 1939, 55, 81-101.
130. WITTY, P. A. The reading interests and habits of five hundred adults. *Education*, 1932, 52, 554-562.
131. WREN, H. A. *Vocational aspiration levels of adults*. Teach. Coll. Contr. Educ., No. 855. New York: Bur. Publ., Teach. Coll., Columbia Univ., 1942.
132. YOUNG, E. O. The mind of a congregation. *Relig. Educ.*, 1929, 24, 866-869.
133. The Fortune Quarterly Survey, VIII, (Anon.). *Fortune*, 1937, 15, 111-112.
134. The leisure hours of 5,000 people. *National Recreation Association*, Mimeographed 1934.
135. The mental ability of adults as related to adult interests, needs, and activities, Cleveland Board of Education, Div. Adult Educ. *Adult Educ. Bull.*, Series 4, No. 2, 1930.

STRONG'S VOCATIONAL INTERESTS OF MEN AND WOMEN

A SPECIAL REVIEW*

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In devising psychological tests our profession has been prolific: such instruments now number in the thousands. In validating them we have performed with less distinction, but there are now available a fairly large number of tests of proven value for various purposes. In the long term study and improvement of the tests we have devised, however, the record of our profession has not been so satisfactory.

Fortunately, there are a few brilliant exceptions to this last statement, exceptions which fully demonstrate the possibilities of psychological measurement. Most of this work has been performed by teams, and followed up, after its value has been demonstrated, by numbers of individual psychologists. Terman's work at Stanford with the Binet Test comes to mind as an example of a test carefully worked out over a period of time by a group of psychologists; it has resulted in innumerable studies by others, which have in turn resulted in better knowledge of the test, of its uses, and of the characteristic it measures. The work of Paterson and his associates and students at the University of Minnesota in the field of manual and mechanical aptitudes is another illustration. Thorndike's work at Columbia in group intelligence testing, and Thurstone's work at Chicago on the isolation and measurement of primary mental abilities, also stand out as examples of test experimentation carefully thought out and persistently followed through over a period of years.

The work now being reviewed is an outstanding addition to this list of distinguished applications of psychological methods to the measurement of human abilities and traits. It is perhaps a unique addition, in that it represents largely the interest and persistence of one man, and in that it deals with an aspect of the field of personality rather than with general or special aptitudes.

The value of such a contribution can perhaps best be demonstrated by a comparison of its outcomes with that of another. Three years ago the reviewer brought together the results of the then published studies of a widely used personality inventory. The original work on the inventory had been well conceived and carefully carried out. It had enjoyed, and still enjoys, a popularity which is, in contrast with that of most other measures of personality, fairly widespread and well-earned. Some one hundred and forty papers had been published in professional journals concerning it and its uses. But few of these had been prepared by the test's author, who, after his first studies with the inventory, had apparently cast it adrift on the seas of applied psychology. It had gone many places, but, pilotless, its final accomplishments were disappointing. This may be because the personality inventory technique is one with limited possibilities, but the widespread interest in further research along these lines suggests that systematic research might have led to further improvements. The many published studies duplicated each other unnecessarily at points, and left unexplored many newly discovered problems which should have been worked on. Improvements which might have been made in the inventory

* Strong, E. K., Jr., *Vocational Interests of Men and Women*, Stanford University, Calif.: Stanford University Press, 1943. Pp. XXIX+746.

as a result of some of the investigations were not made, partly because the authors of the studies had no responsibility for the test, and perhaps also because the author of the test had no responsibility for the studies. The studies reflected the varied interests and opportunities of a large number of scattered psychologists. No one person or group of persons was concerned with the integration of the results of the investigations, nor with the planning and execution of other studies which might explore untouched problems or try out suggested refinements. As a result, the inventory in question is still of somewhat doubtful value in spite of years of study and pages of print. On the other hand, the work of Terman, Thorndike, Thurstone, and Strong has borne fruit in tests of known value and in greater knowledge of the abilities and traits with which they deal. This is to no small extent due to the continuing interest, persistent activity, and coordinating ability of the psychologists responsible for the original work.

In the *Vocational Interests of Men and Women* Strong has brought together the results of nearly twenty years of work with his *Vocational Interest Blank*. Although it deals largely and at length with his work on his test, the book also brings together the results of other studies using his interest inventory and of work with the inventories to which his is related. Other instruments for the inventorying of interests are considered when work with them throws additional light on problems which Strong considers pertinent, but not otherwise: for example, the *Kuder Preference Record* is barely mentioned, the *Cleaton Inventory* not at all. Despite recent important work with information tests of interest, interest tests, as contrasted with inventories, are dismissed in less than three pages in which the approaches of Burtt, Flanagan, Super, and Wyman are briefly discussed, and the rather different approaches of R. B. Cattell and E. B. Greene are not mentioned. Even some studies with Strong's inventory are excluded, as in the case of the reviewer's investigation of the relationships of vocational and avocational interests, when they do not seem to contribute directly to the main currents of the book. As the volume reaches the monumental length of 746 pages in its present form this intentional cutting to the strictly relevant is understandable, even though a more comprehensive book, including Strong's thinking on the closely related topics which he has excluded would have been welcome. Carter's much briefer monograph, although it supplements Strong's and is a valuable brief review of research since 1931, is unfortunately also somewhat limited in its scope.

Recognizing that a great deal of the material in the book would be essential reading for all consulting psychologists and vocational counselors, and that much of the content would be of interest only to specialists in measurement, personality, and related problems, Strong has wisely devoted the first hundred pages to a review of the development, nature, and use of the test, and has reserved for the last six hundred pages the detailed discussion of matters covered more generally at first. Thus the clinician or consultant who uses the test in his regular work and who is interested only in understanding the inventory as a diagnostic or predictive instrument can, with occasional reference to later sections, quickly read the relevant part of the book: the style is clear and concise, the language not too technical, and the presentation suitable for those who have not specialized in measurement. The psychologist who wants detailed information concerning the technical problems encountered in developing the inventory, the methods used in solving them, and the results of its use finds the desired material in the well-organized body of the book.

Contents. Part I, general introduction, includes chapters on the nature of interest, guidance in terms of interests both estimated and inventoried, the differentiation and prediction of interests, the use of the *Vocational Interest Blank*, scoring the blank, and similarities in the interests of all types of persons. Part II goes into detail concerning Strong's well-known work on the differentiation and classification of interests. Part III contains chapters on the various types of interest factors, namely occupational level, masculinity-femininity, interest maturity, age (largely from his earlier *Change of Interest with Age*) and the results of factor analysis studies of Strong's scales. Part IV, guidance based on interests, deals at length with the permanence of interests, the prediction of vocational satisfaction, the interpretation of interest profiles, and the use of interest and aptitude tests in counseling. Part V consists of two chapters on the differentiation of the superior from the inferior members of occupational and academic groups, as contrasted with the differentiation of occupations as in the rest of the volume. Part VI is concerned with the differentiation of skilled workmen, and presents new and important material on the development and use of interest scales at the lower occupational levels; in fact, the reviewer read this material with the zest of one who is making an important new discovery, which indeed it is. Part VII goes into the details of the various scoring problems encountered during the course of work with the test, and the solutions proposed and tried. Two final chapters deal with miscellaneous problems of racial differences, heredity, faking interest, and the composition of criterion groups. The preview or summary in the first part of the book does not detract from the interest and value of the more detailed presentation which follows.

Nature of Interests. Although Strong has focused his attention on the development and study of his inventory, he has in that very process given much thought to and gathered much material on questions concerning the nature of interests. As is so often the case, a contribution to applied science has developed into a contribution to pure science.

Follow-up studies of college students by Strong and others have shown that interest scores are fairly stable during the college period and the years immediately following. Administration of the *Vocational Interest Inventory* to high school students demonstrated that the vocational interests of adolescents are similar in kind and not very different in degree from those of adults, and that interest scores are fairly stable during adolescence and early adulthood. Also, Carter's and Strong's comparison of the interests of monozygotic and dizygotic twins, of fathers and sons, revealed relationships comparable in their nature to those other studies have shown for intelligence, but lesser in degree: the correlation for monozygotics is .50, for dizygotics .28, for fathers and sons .29 (average of 22 scales).

These findings throw some light on the origin of interests and provide an answer to those who object to the use of a test standardized on adults in work with adolescents. That patterns of vocational interests begin to be clear cut in adolescence and remain fairly stable throughout life, indicates that the test can be used in vocational guidance at the high school level and that vocational interests are not acquired as the result of vocational experience. The interests of high school boys can and do resemble those of experienced engineers, printers, and accountants, even though they have never had direct and intimate contact with their work, and these resemblances are relatively stable. If these interests are therefore not the result of vocational experience, is it to be concluded that they are inherited? A case of this sort might be made on the basis of the above data, but Strong is too familiar with the results of other nature-nurture

studies and has studied his own test too carefully to reach such a simple conclusion. His answer is that interests are not inherited in the same manner as physical traits, but are learned, and that this learning is partly the result of inherited characteristics. Interest is the expression of reactions to the environment. The reaction of liking-disliking is the result of satisfactory or unsatisfactory dealing with that aspect of the environment. Strong believes, although he points out that evidence on the whole question is meager, that satisfactory dealing with objects depends upon abilities which are inherited. Interests might therefore be said to be the outcome of interaction between inherited abilities and the environment. That the relationship of ability and interest is obscure is, he suggests, the result of environmental differences: whereas an Indian boy with fine finger coordination might normally want to make arrows, and would be encouraged in his interest, an American boy might want to be a watch repairman or a dentist, and would be encouraged or discouraged in such ambitions according to the social status and mobility of his parents. In any case, Strong concludes, his data show that the contribution of environment to interest is made at an early date, in the home and in the elementary school. This has important possible implications for vocational orientation programs.

Interest as a Predictor of Vocational Success. Attempts have been made by various researchers to use measures of interest as predictors of success, satisfaction, and stability in an occupation. The correlations between abilities and success having been found to be far from perfect, it was generally assumed that interest and personality accounted for the rest of the variance. Tests of these factors were therefore seized upon eagerly to round out test batteries and regression equations for the prediction of vocational or academic success. When Fryer wrote his comprehensive review of interest research in 1931, the then published studies led him to conclude that interest and achievement were not related. Since that time, however, further work with improved instruments and methods has shown that a measure of interest is, to some extent and in some circumstances, a predictor of success or failure. In an occupation such as that of life insurance salesman, for example, the successful are rather well differentiated from the unsuccessful men, the correlation between volume of sales and Strong's life insurance salesman key being .37. This is a satisfactorily high relationship, for as Strong points out this is a coefficient based on only one test and on a restricted range of subjects. If more men making low scores on the scale (and selling less insurance) could have been included in the group the validity coefficient might be considerably higher. Despite the possibility of faking scores demonstrated by several experimenters, it has been shown that Strong's inventory can be of value in selecting life insurance salesmen.

But it is perhaps not simply a matter of chance that Strong's most effective work in the prediction of success with his inventory was with life insurance salesmen. In an occupation such as this, motivation to earn, and especially the congeniality of the means of earning, should be important. That this is so is indicated by some of Strong's exceptional cases, high-scoring salesmen who earned little but who had private sources of income, and low-scoring men who had exceptional contacts. In many other occupations interest factors should contribute less to achievement because they have less effect on the method of carrying on the work. Thus in the studies of the Minnesota Employment Stabilization Research Institute Strong's scales failed to differentiate between the employed and the unemployed in most occupational groups. It is rather surprising, but perhaps a function of the criterion or of the types of judgments to be made, that Strong found no differences in the teaching interest scores of

teachers rated successful and unsuccessful, whereas in the case of foremen in a chemical plant ratings of success yielded a correlation of .34 with scores on the chemists' scale. The data for aviators are suggestive however, even though the groups in question are small, for volunteers scored higher than others on the key, while successfully employed pilots were not differentiated from other volunteers who failed in training.

Data concerning measured interest and scholarship are similar to these last in their trend, in that correlations with grades are low while the relationship between continuation in a course of training and score on the appropriate interest scale tends to be high even when academic failures are excluded from consideration. Thus of dental students who scored A or B+ on the dentists' scale as freshmen, 96% graduated; of those who scored B or B-, 67% graduated; of those who scored C, 25% graduated. Similar results were found with home economics students, and, although Strong does not mention the study, with nurses by Williamson. Strong's general summary (529) of the relationship between interest scores and scholarship is typical of his judicious summaries of other problems:

All this suggests the following hypothesis: If a student has sufficient interest to elect a course, his grades will depend far more on his intelligence, industry, and previous preparation than on his interest. Interest affects the situation, however, in causing the student to elect what he is interested in and not to elect courses in which he is not interested. When a student discovers he has mistakenly elected a course in which he finds little interest, he will finish it about as well as other courses but he will not elect further courses of a similar nature. Because of this situation it is difficult to obtain a real measure of the relationship between interest and scholarship, since those with less than a fair amount of interest in the subject seldom take the course at all.

This reviewer would be inclined to call the above statement a conclusion rather than a hypothesis, in view of the evidence on hand. Further substantiation for it is found in a study of Strong's in a recent issue of this journal, in which Army Specialized Training Program students of psychology, many of whom had no special interest in their major, were the subjects. The nature of the group gave the investigator a less restricted range of interest test scores and a larger number of relatively uninterested students: in this case the correlations between interest test scores and grades in psychology were as high as those between intelligence test scores and the same criterion.

Strong has well pointed out, however, that achievement is not a suitable criterion of the validity of an interest test. He says (548):

Occupations are grouped as far as interests are concerned in terms of the kinds of things which are handled. . . . There is little justification for believing that men can be grouped on an interest basis with respect to the procedures employed regardless of the things handled. . . . Differences between superior and inferior men in any field would seemingly pertain to *how* they handle things, since they must handle much the same things. If so, it may actually be that the interests of superior and inferior men in the same field are much alike. On the other hand, the lack of success in differentiating the superior from the inferior may be the result of inadequate methods. This conclusion is justified at present because the more extensive investigations listed above have shown on the whole some differentiation.

The studies referred to in the quotation are investigations which used a rather more appropriate approach than those already cited in this review. Instead of attempting to predict success or failure with *occupational differentiation* keys, they developed keys based on the *differentiation of successes from fail-*

ures within a given occupation. Thus Ryan and Johnson found that superior salesmen and service men were not differentiated from inferior men in the same groups by valid occupational keys, but were identified by success-failure keys for each occupation. Strong points out that now that the importance of norming groups of more than 250 subjects is known, further work with success-failure keys should be tried.

Interest as a Predictor of Vocational Satisfaction. Recognizing that occupational interest inventories might not be predictors of success, many psychologists have continued to use them on the assumption that they were indices of probable vocational adjustment and satisfaction. Strong himself has subscribed to this hypothesis. On page 14 he writes: "Interests indicate satisfaction." He goes on to state: "Satisfaction may or may not be related to efficiency or to ability or to success as viewed by another . . . The desire for social approval is an important ingredient in satisfaction." He points out and illustrates the fact that social approval may result from things incidental to the activity rather than from the activity itself. Thus a girl may be interested in badminton, not because of ability in the game, but because of the opportunity to wear clothes which win social approval or in other ways to gain the attention of a young man who may like the activity for its own sake.

In spite of widespread acceptance of the hypothesis concerning the significance of vocational interests for personal and vocational adjustment, surprisingly little research has been done in the prediction of satisfaction. Strong himself has worked along somewhat different lines, as will be seen in the next section. Moreover, he has reported no studies of the relationship of interest to expressed or diagnosed satisfaction or dissatisfaction. In his chapter devoted to the prediction of future occupational satisfaction, the research material comes largely from studies using other approaches. Only one study using expressed satisfaction as a criterion is referred to, and, although stimulating quotations are taken from it, it is not discussed at length. The only other relevant studies known to the reviewer, his own, on avocational interests and vocational satisfaction, are not mentioned. On page 394, Strong quotes Sarbin and Anderson to the effect that "adults who complain of occupational dissatisfaction show, in general, measured interest patterns which are not congruent with their present or modal occupations." Findings such as these would seem to warrant discussion and further research.

Interest as a Predictor of Occupational Stability. Strong, the Dyers, and Van Dusen have emphasized another approach to the validation of interest inventories, and hence another interpretation of what they measure. Strong thinks of interest as a determiner of the *direction of effort*, while ability determines achievement (18). The direction of effort is, he believes, a resultant of both success and satisfaction. Concerned primarily with the practical aspects of his interest blank, Strong is apparently satisfied to rely upon a composite criterion of validity (387). Men do tend to enter and to remain in, for periods as long as ten years, the occupations in which they originally made the highest scores. Since, as Strong points out, irrelevant factors such as family interests tend also to make for occupational stability, this is not too satisfactory a criterion of adjustment. For this reason it is to be regretted that validation has not also been done by studies using approaches such as that of Sarbin and Anderson.

Differentiation of Men and Women by Occupations. The outstanding achievement of the author of the *Vocational Interest Blank*, and his best known to psychologists and educators, is his demonstration of the existence of measurable differences in the interests of men and women engaged in various oc-

cupations. The pioneer work in this area was started under W. V. Bingham's leadership by the outstanding group of applied psychologists who were associated with him at the Carnegie Institute of Technology immediately after the first World War. Strong continued with his work along these lines after that group broke up in 1923.

Persistence in this area involved, among other things, the working out of *weighting and scoring* formulas, activity in which he had the effective help of T. L. Kelley, and in which many amateurs and some experts are still engaged. Despite strong pressure for the development of a simple and time-saving scoring system, Strong has consistently held out for the most valid possible technique. His approach, as illustrated by various journal articles and by chapters 23 and 24 of his book, has been marked both by a willingness to test the value of various suggested simplifications and by an insistence that, before a modification such as Dunlap's is adopted for use, the experiment provide an affirmative answer to the question, "Does the simplified method distinguish between occupational groups as well as the more complex?" If the answer was negative, Strong rejected the simplification. This attitude has resulted in a great interest on the part of test users in more easily scored inventories such as Kuder's, and even in a market for some tests of spurious face validity, but the wealth of data concerning Strong's blank, his insistence on high standards of efficiency, and the increasing availability of machine-scoring should assure him a substantial group of discriminating users.

Another problem to which Strong had to find an answer was that of the *number of cases* needed for the standardization and validation of a scoring key. Earlier studies, including that made by Cowdery under Strong's supervision and which encouraged the latter to continue his work at Stanford, had suggested that groups of as few as 100 men should be sufficient for the normative group (638). As his work progressed, however, he found that increasing the size of the norming group increased the validity of the inventory, and that, when groups as of many as 400 to 500 men were used, cross-validation was not necessary. When getting cases is difficult, it is better, according to his data, to put them all in the norming group than to save some for a check on the validity of the key. The need for large norming groups has recently been amply confirmed for a variety of tests by the work of army aviation psychologists, in which numbers comparable to Strong's have been found adequate, but cross-validation has been found to be desirable in order to insure a refined and stable scoring key.

The point of reference, or men-in-general group to which to compare men in an occupation for which a key is being constructed, provided another real and fruitful problem which Strong had to solve in the development of his inventory. Early studies, in which men in two or more occupations were lumped together into a men-in-general group for contrast with the group under investigation, used whatever subjects were available as a point of reference. This procedure worked very well, until enough occupations had been studied for three problems to be encountered, arising from the point of reference. The first of these arose when attempts were made to measure the interests of men in the skilled trades, the second when interest inventory technique was applied to women, and the third when the interests of men in closely related occupations were being measured.

Work done at the Minnesota Employment Stabilization Research Institute, where the first extensive use of the *Vocational Interest Inventory* with men in the skilled and semi-skilled trades took place, had suggested that men in some

of the skilled trades have interests which resemble in kind but differ in degree from those of men in certain higher-level occupations, and that the interests of the rank and file of workers are undifferentiated. Demonstrating in this, as in connection with many other problems, a laudable degree of scientific imagination and thoroughness, Strong set up three hypotheses, namely that:

1. Certain occupations at different levels have the same type of interests.
2. The rank and file cannot be differentiated by their interests.
3. Men in the lower-level occupations have their own peculiar interests.

He then proceeded to experiment with occupational scoring keys in which the likes and dislikes of men in both higher and lower-level occupations were compared with those of men in the higher-level occupations, in the lower-level occupations, and in a cross-section of occupational levels.

The standard keys for Strong's inventory are based on a high-level point of reference, consisting largely of men in business and professional occupations. Using a low-level point of reference, Strong found that the intercorrelations of high-level occupations were raised, but those of middle-level occupations remained the same, and that those of low-level occupations were lowered. The effect of this last finding was to break up Group IV, consisting of low-level technical occupations, into several occupational groups. Although Strong's current occupational classification would be essentially the same so far as it goes, with either point of reference, this makes it clear that as scoring keys are developed for additional lower-level occupations, using the lower point of reference, new occupational groups will be added to Strong's steadily expanding list.

Strong points out that the earlier studies which suggest the validity of hypotheses 1 and 2 were in error, because their authors viewed lower-level occupations from above. This fact can be demonstrated in reverse, by viewing higher-level occupations from below: when compared with other business and professional men the interests of lawyers and accountants, for example, correlate $-.42$, but when the skilled-trade group is used as a point of reference for their scoring keys, they have a correlation of $.61$. In other words, when men engaged in differing occupations at the same social level are compared by means of men of their economic class, their interests appear to be quite different; but when they are compared by means of men of lower social levels they seem quite similar. Strong's third hypothesis therefore seems to be validated, and there is reason to think that in due course interest scales should be available for use with the skilled trades and perhaps the semi-skilled occupations. When this is the case, examinees should be scored, Strong concludes, on the high-level scales if their occupational level score is 45 or above and on the low-level scales if their occupational level score is below 45.

The Minnesota psychologists turned up another problem for Strong (upon which one of his students at Stanford and Manson at Northwestern had already done some work) when they found that the *interests of women* were more nearly universal than were those of men. As Crissy and Daniel put it (to their subsequent regret, when letters of protest began to arrive from women psychologists) the interests of most women seem to be heavily loaded with a factor of "interest in male association." As Strong points out (166), the naming of the factor is open to question; the important point here is that this factor is very common in women, making it difficult to construct interest scales for women's occupations. As jobs are really only stop-gaps before marriage for many women, Strong says, it is difficult to obtain homogeneous groups of employed women

upon whom to standardize and validate keys. In the case of men, whose lives are more job-centered, this is much easier. Despite these obstacles, Strong has succeeded in developing satisfactory scales for professional women. He points out that the task of developing keys for guidance in connection with the occupations entered by most women still remains to be done, and the method has not as yet been developed as it has been for the lower-level men's occupations. A scoring key which would differentiate career women (if indeed there really are such) from women who marry in due course would, if properly used, be a valuable tool in educational and vocational guidance and selection; but the difficulty of the task is suggested by the high correlations of the keys for such popular occupations as nurse, elementary school teacher, office worker, and stenographer with that for housewife.

In the case of men, the point of reference created a problem of measurement at different social levels of which Strong became fully aware and for which he found a solution. In the case of women, the point of reference created a problem because too many women appear to have the interests of women-in-general. Strong recognized it, but has not yet found a complete solution to it. The point of reference has created a third problem, of which Strong does not seem to be fully aware and concerning which he has taken no action. This problem has to do with the differentiation of interests in men in closely *related occupations*.

Estes and Horn, for example, made a study of engineering students in which they found that the interests of civil, chemical, and industrial engineers were not at all like those of Strong's criterion group. Even the correlations of their mechanical and electrical engineering scales with Strong's key (which was based on those types of engineers) were only in the neighborhood of .70. As Strong points out (121), we now know that this is to be expected, for Estes' and Horn's point of reference was an engineering group, whereas Strong's was a group of men-in-general. When the interests of mechanical engineers are contrasted for keying purposes with those of engineers in general, they appear to be an interest group distinct from other engineers; on the other hand, when they are compared with those of a heterogeneous group of men, they appear to be very similar to other types of engineers. The common element of engineering then outweighs the peculiar elements of electricity and mechanics. The findings are similar to those for socio-economic points of reference. What Strong apparently fails to fully appreciate, however, is the implication of Estes' and Horn's study for the development of specialized keys for the guidance of engineering or other students into specialties within their broader field. Instead of suggesting research along these lines, using the broad occupational group as the point of reference, Strong criticizes the experimenters' use of students rather than successfully employed men in developing their scales. The criticism is well made if the scales are proposed for actual use, but it would be unfortunate if focusing attention on this point diverted it from the real problem, namely, the use of specialized points of reference when studying specialties within an occupation.

The fundamental *similarity of the interests of all persons* is another fact which should be mentioned in connection with Strong's work on the differentiation of occupations. The interests of psychologists having for long been primarily in the field of differential psychology, studies of interests have been focused on the differences between groups of various types, whether they were classified by occupation, curriculum, avocation, race, sex, or age. Generally alert for by-products of his work, Strong noticed that his scoring keys for group differences are generally based on a relatively small proportion of the total number of items in his inventory, which in turn led to the finding that the likes of persons in

various categories are rather highly correlated (91). This is probably a good thing for counselors to keep in mind, by way of retaining perspective when using the occupational keys. The interests of boys and men, of men and women, of lawyers and foresters, resemble each other more than they differ. The interests of boys and women, the two most different groups, have a correlation coefficient of .48. This is as high as that for identical twins.

Statistical Procedures. It seems appropriate, in reviewing a monograph such as this, to comment briefly on the *adequacy of the statistical techniques* used by the author of the numerous studies reported therein. It has already been pointed out that, in solving the complex problem of devising a scoring technique for an interest inventory, Strong wisely sought and used expert statistical advice, and then improved upon the method himself (609). One of these improvements consisted of expressing data in percentages instead of in raw numbers, thus making it possible to read weights from a table instead of substituting in the formula for each alternative response to each item—a total of 1200 equations for one occupational group! Another consisted of reducing the six-fold to a four-fold table by contrasting those who chose a response with those who did not choose it, rather than with those who chose each possible other response. When Kelley, his former consultant, devised improvements in the weighting formula, Strong constructed two experimental sets of keys for five occupations (quite a task in itself), and put them to an empirical test. When the experiment showed that one of the revised procedures had more differentiating power than the old formula, Strong adopted it for his revised form (613). On the other hand, when simplified procedures were devised, tried out, and found promising by Dunlap, and when his own experiments showed that, although good, they were less discriminating than the standard method, Strong rejected the proposed changes (633). His grounds were that sound counseling requires the most effective possible methods even though the expense is thereby somewhat increased. Similarly, when Thurstone applied factor analyses to his test with promising results, Strong carried on from there (Ch. 14). Such thoroughness leaves little for the reviewer to say.

A few interesting *statistical by-products* of Strong's work are worth noting. On pages 113–114 Strong reports a rather high mean accountant score for certified public accountants (42.60 as compared with a mean standard score of 49.44 for accountants), but a rather low correlation between scores on the two relevant scales (.28). An analysis of the scores showed that C.P.A.'s making scores of A on their own scale had accountant scores ranging from 12 to 62 and correlating not at all with each other (no data are given), whereas the scores of other C.P.A.'s correlated fairly highly on the two scales. Strong concludes that C.P.A.'s have many interests in common with accountants, as is revealed by the high mean accountant score, but that fact is not revealed by the correlation, which shows little relationship between the rank order of scores in the two occupations. As the author points out, in this case neither means nor correlations seem to tell the whole story.

In another instance, Strong seems to have missed an important implication for statistical work. In Chapter 17, in which he discusses the interpretation of *interest profiles*, Strong advocates the plotting of interest inventory scores in profile form, and supplies a wealth of material illustrating and making possible the use of scores on more than one occupation when deciding whether the choice of a particular occupation is wise. That the consideration of supporting scores (e.g., medical or engineering interests in psychologists) is important in guidance is very true. But when, on page 414, Strong rejects the statisti-

cal combination of test scores, he is guilty of a basic inconsistency. If his inventory technique, consisting of a statistical summation of interests in specific occupations and activities, provides useful information not made available by a clinical study of responses to the specific items in the inventory, why should not a statistical summation of scores on interest scales provide data as useful as the clinical study of those test scores? This suggestion of the reviewer's should not be taken as a suggestion that the clinical study of the scale scores is not valuable: it is, and so is the study of responses to specific items in the inventory, as Shellow has reported. Knowing the relative physicist and physician scores of an embryo psychologist, for example, could be useful in deciding between emphases in experimental and clinical psychology. But a statistical combination of these test scores could, as Strong's own arguments for the consideration of primary, secondary, and tertiary interests imply (432-448), provide an even more valid interest score for any given occupation. As Strong points out, it is dangerous to recommend an occupation on the basis of a high score in that occupation alone. This score, he states, should be supported by high scores in related occupations. Why not indicate this support by a combination of scores on related occupations?

Such minor defects are much more than compensated for by recognition of the futility of using statistical techniques which are more refined than the data warrant (e.g., page 301), and by a commendable caution when small numbers are involved (e.g., in connection with Segel's interesting work, page 529), this latter virtue being one the importance of which many aviation psychologists have come to appreciate during the past three years. In spite of the few defects discussed in the last two paragraphs, Strong's work shows a remarkable freedom from statistical weaknesses, especially in view of the long period over which it was spread and the variety and complexity of the problems studied.

Random Notes. No study of this sort would be complete if it did not yield some results which are somewhat amusing, rather difficult to accept, and challenging to further work. They are the topics on which popularizers of psychology thrive, and the asides which enable a professor to awaken, momentarily, the drowsier students in the back of his classroom. A few such findings are briefly noted here, as being too good not to be shared.

Most of us think of scientific psychology as an interest of rather mature persons. Certainly few students choose it as a major until rather later than most such choices are made. But the *interest maturity* of psychologists (full members of the A.P.A. in the late 1920's) is comparable to that of the average 20 year-old! We may take comfort, however, in the fact that those respectable scientists, the mathematicians and physicists, and members of the esteemed medical profession, are the equals only of 17 year-olds. YMCA secretaries, school administrators, and ministers have the highest interest maturity scores. For all this there is good evidence. But that is another story, the telling of which will be found in Strong's Chapter 12.

Widely held stereotypes concerning the *attitudes and values* of men engaged in various occupations have been confirmed by a number of studies of the relationship of interest inventory scores or occupational membership to scores on attitude tests and value scales: Strong cites Allport, Duffy and Crissy, Wickert, and others (342 f.). Evidence such as this had led the reviewer to expect men in various occupations to answer Part VI of Strong's blank in ways which seem to be contradicted by Strong's conclusions. He reports (101) that men tend to value most that which they lack: skilled workers consider steadiness and permanence of work most important, and clerical workers value opportunities for pro-

motion above all. If the contradiction between responses to Strong's values items and the results of studies with values tests were as general as Strong suggests, professional men should not value freedom to devise their own methods and opportunity to use all of their knowledge as highly as some other things. But they do actually rate these highest (Table 19, p. 102). Does this mean that Strong's conclusion concerning the desire for that which is lacking is mistaken, or does it mean that professional men do not actually have sufficient opportunity to follow their own methods and to use all of their knowledge? Perhaps some groups respond in terms of what they lack, others in terms of what they have and seek (relatively speaking) still more of; or perhaps Strong's list of values is not sufficiently inclusive.

Another suggestion of Strong's should be referred to briefly, because it, too, should stimulate some worthwhile research. On page 441 he writes:

The writer has a hunch that the general level of the half-dozen highest ratings is a rough measure of the *amount of motivation* that the individual has at his disposal for working hard and making a success. Men with low ratings have given the impression of being 'drifters.' This topic needs careful investigation.

Strong and his publishers, to whom applied psychologists are becoming increasingly indebted, have done an excellent job of preparing the manuscript and putting it into print. The table of contents is well organized and very detailed, the topic headings are numerous and meaningful, the index adequate and accurate. In view of the vast amount of material that has been correctly reproduced in this lengthy volume, it seems like the act of a petty critic to point out a few errors that have been noted. To do so, however, may be of value to a few readers; it will gratify the reviewer's desire to show that others, too, are fallible; and it will show, by the very brevity of the list, how accurately Strong and Stanford have done their work. Brainard's test (522) is not the *Activities Inventory*, but the *Specific Interest Inventory*. The last sentence of the second paragraph on page 642 should refer, not to Table 165, but to Table 166. And Fryer, the first summarizer of interest test research, after having had his name spelled correctly a dozen times, surely deserves to have it spelled properly the last two times, on page 658 and in the index.

Envoi. Strong refers to "man's reluctance to think unless he absolutely has to" as a reason for students' failing to make adequate analyses of occupations and of their interests when choosing an occupation (33). This relatively brief and necessarily selective discussion of a few sections and topics of the "*Vocational Interests of Men and Women*" has sufficed, it is hoped, to bring out Strong's willingness to think about his problem and his data, his persistence in following up new problems as they arose, his skill in putting his findings to use in the refinement of his test, and the ability with which he has organized and presented his work in this volume. Many of Strong's important findings have not even been mentioned in the review, and some of the interesting problems raised by his work have not been touched upon. The volume is a gold mine for students in search of thesis topics. But one cannot hope to deal adequately with a classic in a single review, especially when the subject of the book is twenty years of research. If some idea of the importance of the work has been conveyed, if interest has been fostered in a few problems, and if the reader has been stimulated to a thoughtful study of Strong's book, this review has accomplished its purpose.

A COMPARISON OF THE PERFORMANCE OF FRESHMEN AND SOPHOMORES IN GENERAL PSYCHOLOGY

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For several years after psychology was made a part of the college curriculum it was taught almost exclusively to upper classmen, presumably on the grounds that upper classmen could more readily grasp its concepts. Gradually the course in general psychology was moved downward in the curriculum until it reached the sophomore level. In a large number of colleges and universities psychology is still open to students only after they have attained sophomore status. A survey of the catalogues of 250 colleges and universities, reported in 1941, showed "that in 44 per cent of the cases freshmen are permitted to elect psychology and in 53.3 per cent sophomores or 'sophomores, juniors and seniors.' Only 3.5 per cent restrict registration to upper classmen" (2).

The acceleration of education brought about by the war has again raised some questions concerning the placement of psychology in the curriculum. What background and training are necessary for the course in general psychology? Are there bases other than possible convenience in programming for holding students out of psychology until the sophomore year? Do groups of freshmen and sophomores, equated or matched on the basis of scholastic aptitude, earn the same grades in general psychology? Two studies published in 1941, before colleges were much affected by acceleration, bear on these questions.

A. R. Gilliland (2) investigated the grade records of freshmen and sophomores matched as to intellectual ability at Indiana University and at Northwestern University. He found small differences in favor of the sophomores in both cases but they were too small to be practically significant and since the critical ratios did not exceed 3.00, he judged them to be not statistically significant. Gilliland concluded "that specific prerequisites in terms of courses or hours of credit are not necessary for courses in general psychology." Although Gilliland does not explicitly say so, it is possible that the practice of giving general psychology to freshmen and sophomores is usual or customary in these institutions and that the course has been adjusted to meet the needs of freshmen.

M. B. Fisher (1) compared the performance of 44 freshman women and 37 sophomore women in a beginning psychology course at Rhode Island State College. He matched the groups as to age and rank on the American Council on Education Psychological Examination. Differences were slight but consistently in favor of sophomores on several objective quizzes and the final examination. The critical ratios are not large enough to make the differences statistically significant. The size of the differences may have been reduced by the fact the freshmen were taught in a class by themselves and "more attention was given in the freshman section to the matter of how to study for a college course and this course in particular." The critical ratios may have been smaller than they should have been because of the small size of the samples. The author concludes by writing, "If these girls are a fair sample of college students, we should always expect a slight inferiority on the part of freshmen as compared with sophomores. But we should also expect to overcome this inferiority to a considerable extent, by some satisfactory orientation procedure and by specific directions on how to study."

The present study is concerned with the comparison of the performance of freshmen and sophomores in the beginning course in psychology at the University of Minnesota. In the fall of 1943 the class in general psychology was opened to freshmen for the first time, without qualification. Fortunately, for purposes of comparison, a large number of freshmen enrolled in the class.

The samples used in the study were limited to freshmen with no previous college experience and to sophomores with at least 3 quarters of college work prior to registration in the course. Adult special students were omitted from the study because of the irregularity of their background. Only people were used for whom there was available a percentile rank on the American Council on Education Psychological Examination and a percentile rank in the high school class from which the individual was graduated. These limitations reduced our samples to 209 freshmen and 218 sophomores. There is no reason to believe that these samples are not representative of the entire class. The measure of fitness for college used at Minnesota is the college aptitude rating (CAR). This rating is obtained by adding the high school percentile rank and psychological examination percentile rank and dividing by 2. This measure, which will be referred to hereafter as CAR, was used in matching our freshman and sophomore groups.

The class in psychology met in two sections with about equal numbers of freshmen and sophomores in each section. There were three 50-minute lecture periods per week. Objective examinations were held at mid-term and at the end of the fall term.

The performance of the two groups is shown in Table I. They are compared here without regard to ability. The honor point ratios (HPR) computed from the data in Table I are 0.866 for the freshmen and 1.298 for the sophomores. It was the relatively poorer performance of the freshmen which is apparent in this table that led the writer to investigate further the matter of prerequisite training for the course.

TABLE I

NUMBER AND PER CENT OF FRESHMEN AND SOPHOMORES
EARNING A's, B's, ETC. IN PSYCHOLOGY

209 Freshmen			218 Sophomores		
	No.	%		No.	%
A	9	4.3	A	25	11.5
B	28	13.4	B	47	21.5
C	98	46.8	C	114	52.3
D	42	20.1	D	25	11.5
F	32	15.3	F	7	3.3
Total	209	99.9	Total	218	100.1

Table II shows the distribution of these freshman and sophomore members of the class according to the CAR measure of fitness for college. The distributions are quite similar when it is considered that many students do not return to college for a second year and at least a part of this mortality is thought to be a function of ability.

Table III shows the per cent of freshmen and sophomores in each CAR decile earning A or B, C, and D or F. Here again it is apparent that the sophomores are more successful in getting satisfactory grades than are the freshmen.

TABLE II

DISTRIBUTION OF FRESHMAN AND SOPHOMORE MEMBERS OF THE CLASS ACCORDING TO CAR PERCENTILE RANK

CAR %ile Ranks	209 Freshmen		218 Sophomores	
	No.	%	No.	%
90-100	25	12.4	32	14.7
80-89	26	12.4	40	18.3
70-79	44	21.1	45	20.6
60-69	35	16.7	44	20.2
50-59	41	19.6	26	11.9
40-49	27	12.9	20	9.2
30-39	8	3.8	8	3.7
20-29	1	0.5	2	0.9
10-19			1	0.5
0-9	1	0.5		
Totals	209	99.9	218	100.0

TABLE III

PER CENT OF FRESHMEN AND SOPHOMORES IN EACH CAR DECILE EARNING A OR B, C, D OR F*†

CAR %ile Ranks	209 Freshmen			218 Sophomores		
	A or B	C	D or F	A or B	C	D or F
90-100	50.0	46.2	3.8	75.0	25.0	
80-89	38.5	53.8	7.7	30.0	57.5	12.5
70-79	15.9	70.5	13.6	31.1	55.6	13.3
60-69	5.7	40.0	54.3	22.7	56.8	20.4
50-59	7.3	34.1	58.5	30.8	57.7	11.5
40-49	7.4	37.0	55.5	10.0	70.0	20.0
30-39		25.0	75.0	25.0	37.5	37.5
20-29			100.0**		50.0	50.0
10-19						100.0**
0-9		100.0**				

* To reduce the amount of detail in the table Grades A and B have been combined, C stands alone, and D has been combined with F.

† The absence of cases in the lower deciles is due to the policy of ordinarily not admitting freshmen below the 40th percentile to the Arts College.

** These percentages have little significance since each represents a single isolated case as can be seen in Table II.

In order to hold constant "fitness for college" so as to bring into sharper focus any differences existing between the two classes, the same number of freshmen and sophomores was placed in each CAR decile. This was done by eliminating, by lot, the excess individuals in one class or the other for each

decile. It is believed eliminations worked no hardship on either class. Table IV presents the number of freshmen and sophomores in each CAR decile earning grades of A or B, C, and D or F when there are equal numbers of freshmen and sophomores in each decile.

TABLE IV
DISTRIBUTION OF GRADES BY CAR DECILES WITH EQUAL NUMBERS
OF FRESHMEN AND SOPHOMORES IN EACH DECILE*

CAR %ile	186 Freshmen				186 Sophomores			
	A or B	C	D or F	Totals	A or B	C	D or F	Totals
90-100	13	12	1	26	19	7		26
80-89	10	14	2	26	9	12	5	26
70-79	7	31	6	44	14	24	6	44
60-69	2	14	19	35	6	21	8	35
50-59	2	9	15	26	8	15	3	26
40-49	1	8	11	20	2	14	4	20
30-39		2	6	8	2	3	3	8
20-29			1	1			1	1
10-19								
0-9								
Totals	35	90	61	186	60	96	30	186

* The absence of cases in the lower deciles is due to the policy of ordinarily not admitting freshmen below the 40th percentile to the Arts College.

It will be observed that there continues to be a difference between freshmen and sophomores. The HPR for freshmen computed from the data of Table IV is 0.909 and that for the sophomores is 1.258. This difference is important, for it means that the average grade earned by these freshmen is below the level accepted as satisfactory by the Arts College while that earned by the sophomores is above the level accepted as satisfactory. The Chi-square test for significance of difference was applied to the data of Table IV and yielded a Chi-square of 17.3 with a P of less than 0.01. Thus the chances are less than 1 in 100 that differences as large as these would have arisen from errors of random sampling.

The ability of the students as measured by the ACE Psychological Examination was also used to match the freshmen and sophomore sections. The results were practically the same, however, the difference between the classes was a bit larger.

The results of this study are in line with the two studies mentioned above inasmuch as all three show differences in favor of sophomores. In the case of the students at Minnesota the difference appears to be larger and to be statistically and practically significant. It is possible, of course, as Fisher suggests, that these differences could be reduced by teaching the freshmen separately and giving special attention to how to study. Under conditions as they are, however, it seems to the writer that there are grounds for requiring some college experience (perhaps not a full year) before registration in general psychology in the University of Minnesota. In the writer's opinion sophomores differ from freshmen of equal ability in having learned to take lecture notes, to stress important facts and principles, and in general to manage their time and efforts more efficiently. If this is true, freshmen, if they are to be taught psychology, should not be forced to compete with sophomores. They should continue as in the past to enroll in courses primarily open to freshmen.

SUMMARY

1. The performance in general psychology of 209 freshmen and 218 sophomores matched as to ability was compared at the University of Minnesota.
2. Sophomores earned a grade average above the satisfactory level. Freshmen earned a grade average slightly below satisfactory level.
3. These results are in line with the trends reported in 2 other studies but the writer regards the difference reported here as significant while the writers mentioned above did not regard the differences they found as large enough to be significant.
4. The writer believes the prerequisite of "some" college experience for admission to general psychology is a benefit to the freshmen if they are forced to compete with sophomores.

BIBLIOGRAPHY

1. FISHER, M. B. A comparison of the performance of freshmen and sophomores in a beginning course in psychology. *J. exp. Educ.*, 1941, 10, 29-32.
2. GILLILAND, A. R. A study of admission requirements in general psychology. *J. appl. Psychol.*, 1941, 25, 171-175.

HUMAN NATURE AND THE PEACE

GORDON W. ALLPORT

On April 5, 1945, there was released to the press a Statement signed by 2,038 American psychologists. This statement had its origin during the summer of 1944 in informal conversations among psychologists, about twenty-five of whom contributed to its formulation. Although at no time was the Statement officially sponsored by any psychological organization, the funds for printing and mailing were supplied by the Society for the Psychological Study of Social Issues, and the recipients of the Statement were the 3,803 members and associates of the American Psychological Association listed in its 1944 Yearbook. The covering letter soliciting endorsements was signed by the following group of psychologists: G. W. Allport, R. S. Crutchfield, H. B. English, Edna Heidebreder, E. R. Hilgard, O. Klineberg, R. Likert, M. A. May, O. H. Mowrer, G. Murphy, C. C. Pratt, W. S. Taylor, and E. C. Tolman.

While many mail solicitations bring only 25 per cent response and while many psychologists were abroad in war service and hard to reach, the result of this call brought more than a 50 per cent response. Among those replying more than 99 per cent subscribed to the Statement. Included among the signers are 350 clinical psychologists, 230 industrial psychologists, approximately 250 in other fields of applied psychology, and approximately 300 in the armed services. The remainder are in universities and colleges. Minor comments and suggestions were received from 92 individuals. There were only thirteen refusals to sign.

Besides being printed in newspapers, the Statement was sent to 535 representatives and senators in the United States Congress, and to many organizations and individuals prominently concerned with peace-planning and international cooperation. The Statement likewise is printed in the recent Yearbook of the SPSSI, *Human Nature and Enduring Peace*, edited by Gardner Murphy.

The full text of the statement follows:

HUMAN NATURE AND THE PEACE

A STATEMENT BY PSYCHOLOGISTS

Humanity's demand for lasting peace leads us as students of human nature to assert ten pertinent and basic principles which should be considered in planning the peace. Neglect of them may breed new wars, no matter how well-intentioned our political leaders may be.

1. *War can be avoided: War is not born in men; it is built into men.*

No race, nation, or social group is inevitably warlike. The frustrations and conflicting interests which lie at the root of aggressive wars can be reduced and re-directed by social engineering. Men can realize their ambitions within the framework of human cooperation and can direct their aggressions against those natural obstacles that thwart them in the attainment of their goals.

2. *In planning for permanent peace, the coming generation should be the primary focus of attention.*

Children are plastic; they will readily accept symbols of unity and an international way of thinking in which imperialism, prejudice, insecurity, and ignorance are minimized. In appealing to older people, chief stress should be laid upon economic, political, and educational plans that are appropriate to a new generation, for older people, as a rule, desire above all else, better conditions and opportunities for their children.

3. *Racial, national, and group hatreds can, to a considerable degree, be controlled.*

Through education and experience people can learn that their prejudiced ideas about the English, the Russians, the Japanese, Catholics, Jews, Negroes, are misleading or altogether false. They can learn that members of one racial, national, or cultural group are basically similar to those of other groups, and have similar problems, hopes, aspirations, and needs. Prejudice is a matter of attitudes, and attitudes are to a considerable extent a matter of training and information.

4. *Condescension toward "inferior" groups destroys our chance for a lasting peace.*

The white man must be freed of his concept of the "white man's burden." The English-speaking peoples are only a tenth of the world's population; those of white skin only a third. The great dark-skinned populations of Asia and Africa, which are already moving toward a greater independence in their own affairs, hold the ultimate key to a stable peace. The time has come for a more equal participation of all branches of the human family in a plan for collective security.

5. *Liberated and enemy peoples must participate in planning their own destiny.*

Complete outside authority imposed on liberated and enemy peoples without any participation by them will not be accepted and will lead only to further disruptions of the peace. The common people of all countries must not only feel that their political and economic future holds genuine hope for themselves and for their children, but must also feel that they themselves have the responsibility for its achievement.

6. *The confusion of defeated people will call for clarity and consistency in the application of rewards and punishments.*

Reconstruction will not be possible so long as the German and Japanese people are confused as to their status. A clear-cut and easily understood definition of war-guilt is essential. Consistent severity toward those who are judged guilty, and consistent official friendliness toward democratic elements, is a necessary policy.

7. *If properly administered, relief and rehabilitation can lead to self-reliance and cooperation; if improperly, to resentment and hatred.*

Unless liberated people (and enemy people) are given an opportunity to work in a self-respecting manner for the food and relief they receive, they are likely to harbor bitterness and resentment, since our bounty will be regarded by them as unearned charity, dollar imperialism, or bribery. No people can long tolerate such injuries to self-respect.

8. *The root-desires of the common people of all lands are the safest guide to framing a peace.*

Disrespect for the common man is characteristic of fascism and of all forms of tyranny. The man in the street does not claim to understand the complexities of economics and politics, but he is clear as to the general directions in which he wishes to progress. His will can be studied (by adaptations of the public opinion poll). His expressed aspirations should even now be a major guide to policy.

9. *The trend of human relationships is toward ever wider units of collective security.*

From the caveman to the twentieth century, human beings have formed larger and larger working and living groups. Families merged into clans, clans into states, and states into nations. The United States are not 48 threats to each other's safety; they work together. At the present moment the majority of our people regard the time as ripe for regional and world organization, and believe that the initiative should be taken by the United States of America.

10. *Commitments now may prevent postwar apathy and reaction.*

Unless binding commitments are made and initial steps taken now, people may have a tendency after the war to turn away from international problems and to become preoccupied once again with narrower interests. This regression to a new postwar provincialism would breed the conditions for a new world war. Now is the time to prevent this backward step, and to assert through binding action that increased unity among the people of the world is the goal we intend to attain.

PSYCHOLOGY AND THE WAR

Edited by

DONALD G. MARQUIS

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ARMY SEPARATION CLASSIFICATION AND COUNSELING: I. OBJECTIVES AND DEVELOPMENT*

STAFF, SEPARATION COUNSELING SUBSECTION, CLASSIFICATION AND REPLACEMENT BRANCH, THE ADJUTANT GENERAL'S OFFICE

Readers of the Bulletin will be familiar with the work of the Classification and Replacement Branch of The Adjutant General's Office, and its responsibilities in connection with Army personnel procedures. Previous articles by the Staff, Personnel Research Section, have dealt with the development of classification testing and with the general procedures of military classification, selection, and assignment.†

Since the early years of the war, there has been a growing realization that the military classification system, functioning "in reverse," might perform a valuable service in connection with the relocation and readjustment of veterans. There are available, through the operation of the Army classification system, records covering the pre-service and in-service educational and occupational history of each soldier and his scores on selected Army ability and aptitude tests.

* First of a series of four articles. Subsequent papers will discuss in detail Separation Center Procedures, Hospital Procedures, and Materials and Training.

† Personnel Research in the Army: I, II, III, IV, V, and VI. *Psychol. Bull.* 1943, 40, 129-135, 205-211, 271-281, 357-371, 429-435, 499-508.

It is clear that this information could be used effectively in a separation classification and counseling program to assist a serviceman in making plans for his return to civilian life.

During the summer of 1943, the Classification and Replacement Branch began formal consideration of the classification aspects of discharge and re-employment procedures. In August of that year the Special Planning Division of the War Department Special Staff outlined the Army's responsibilities with regard to separation and discharge and requested The Adjutant General to study separation classification and counseling procedures and make appropriate recommendations. The Classification and Replacement Branch, to whom this request was referred, began to develop certain techniques and procedures for Separation Classification and Counseling which were subsequently tried out in an experimental situation.

A. OBJECTIVES

The over-all objective of Separation Classification and Counseling is to provide the soldier about to leave the service with the information and guidance necessary for him to initiate his readjustment to civilian life. In brief, it seeks to assist the soldier in bridging the gap between military and civilian life.

It was decided that this objective could be achieved most effectively through a program of vocational and educational counseling in which the soldier would be given individual counseling, at the time of discharge, and provided with a transcript of Army experience which he could use in getting a job or applying for additional schooling. This transcript should include a summary of the man's military training and experience and a translation of them into related civilian occupations. Specifically, the accomplishment of the objective of Separation Classification and Counseling would involve:

1. the preparation of a record summarizing the soldier's educational history, his civilian occupational background, and his Army training and experience;
2. an opportunity to ask and have answers to specific questions concerning his discharge from the service, and his rights and benefits as a veteran;
3. an opportunity to discuss his future educational and vocational plans with a well-informed counselor; and
4. accurate referrals to governmental and other agencies both within and outside the Army interested in assisting the veteran in his readjustment to civilian life.

B. EARLY PROCEDURES

Efforts were initially directed toward the preparation of a technical manual which would outline the procedures and techniques of Separation Classification and Counseling, and the development of a form which would summarize the soldier's Army experience from the military records available at the time of separation, supplemented by an interview with the soldier.

After frequent consultation with representatives of industry, education, and governmental agencies, a Separation Qualification Record (WD AGO Form 100) was developed. Basically, Form 100 as shown in Figure I, is a brief summary of the soldier's civilian and military educational and occupational history, with a conversion of civilian and military skills and training to related civilian jobs. These conversions are made by the counselor by reference to *Special Aids for Placing Military Personnel in Civilian Jobs*, and *Part IV of the Dictionary of Occupational Titles* both prepared by the War Manpower Commission.

SEPARATION		QUALIFICATION		RECORD	
LAST NAME - FIRST NAME - MIDDLE INITIAL BRACKER JOHN T		ARMY SERIAL NUMBER 342981189		GRADE Sgt	DATE OF ENTRY INTO ACTIVE SERVICE 3 Feb 43
PERMANENT ADDRESS FOR MAILING PURPOSES (Street and Number - City - County - State) 913 Roanoke Street, Seattle, King Co., Washington					
CIVILIAN EDUCATION					
HIGHEST GRADE COMPLETED 7	LAST YEAR GRADUATED 1913	HIGHEST DEGREE RECEIVED None	MAJOR COURSE OF STUDY None	NAME AND ADDRESS OF LAST SCHOOL ATTENDED Renton School, Renton, Washington	
COURSE Typing	UNITS 24	COURSE None	UNITS None	COURSE None	UNITS None
SERVICE EDUCATION					
SERVICE SCHOOL 110 Artillery	COURSE Supply Clerk	GRADE 3rd VS	ARMY SPECIALIZED TRAINING PROGRAM		
		INSTITUTION None			
		COUNTELDOWN AND TERM None			
		NO. OF WEEKS None			
		GENERAL None			
CIVILIAN OCCUPATIONS					
MAIN OCCUPATION MAIL CLERK			SECONDARY OCCUPATION ROOM CLERK		
JOB SUMMARY Received, sorted, and distributed incoming and outgoing mail. Also substituted as carrier during holiday seasons.			JOB SUMMARY Registered incoming guests and assigned rooms in a small hotel. Checked out departing guests and received payment of their accounts. Also has had some experience as bellboy, waiter, and porter. Operated switchboard as part of duties as clerk.		
DATE OF LAST EMPLOYMENT 7/2 Sep 42			DATE OF LAST EMPLOYMENT 13 Oct 33		
NAME AND ADDRESS OF EMPLOYER Post Office, Renton, Wa.			NAME AND ADDRESS OF EMPLOYER Alaska Hotel, Pine Street, Seattle, Washington.		
MILITARY SPECIALTIES					
GRADE	MONTHS	SERIAL	MONTHS	GRADE	MONTHS
1	0	Sgt	Supply Clerk	336	0
0	2	PPG	Mail Orderly	055	0
SUMMARY OF MILITARY OCCUPATION AND CIVILIAN CONVERSIONS (Shown by title)					
SUPPLY CLERK: Performs various clerical and stock-handling duties in connection with receipt, storage, issue, and shipping of general supplies and equipment. Handles invoices, requisitions, bills of lading, etc. Assists in taking inventory. Maintains stock records, anticipates and estimates needs.			CIVILIAN CONVERSIONS: Receiving Clerk III Shipping Clerk I, II Stock Control Clerk		
SUMMARY OF MILITARY OCCUPATION AND CIVILIAN CONVERSIONS (Shown by title)					
MAIL ORDERLY: Performs general military office work not requiring the use of a typewriter. Takes telephone messages and gives information to callers. Does simple bookkeeping. Sorts and distributes mail.			CIVILIAN CONVERSIONS: Clerk, general		
* THIS INFORMATION BASED ON SOLDIER'S STATEMENT. (Indicate by * any item not supported by military records)					
DATE OF SEPARATION 1 Aug 44	SIGNATURE OF SOLDIER <i>John T. Bracker</i>		SIGNATURE OF SEPARATION CLASSIFICATION OFFICER <i>Ralph P. Mullin</i> Ralph P. Mullin Capt AGD		

U.S.A.G.O. FORM NO. 100 15 July 1943

Figure 1

In order to test the plans and procedures formulated, approval was granted by the War Department Special Planning Division to make an initial selection of officer and enlisted counselors, set up a short training course for them, and to initiate experimental counseling activities at specified points of separation. A two-week course for counselors was held in New York City, in which refresher training in counseling techniques and procedures, filling out of Form 100, and the functions of such referral agencies as the Veterans Administration, Selective

Service System, United States Employment Service, American Red Cross, United States Civil Service, and other interested agencies was provided.

Following the school certain officers and enlisted men were assigned to an experimental separation center for processing of able-bodied men at Fort Slocum, New York, on 14 February 1944. This center was concerned with the complete discharge process of which separation classification and counseling was an integral part. The center completed the soldier's Army records, examined his equipment, gave him his final physical examinations, prepared his discharge papers, and provided him an opportunity for personal counseling. By the end of March, the Fort Slocum experiment had been officially approved by the War Department, and the first permanent separation center activated at Fort Dix, New Jersey on 30 March 1944.

One officer and one enlisted man from the initial class were assigned to Tilton General Hospital, Fort Dix, New Jersey for a similar trial period. Separation counseling soon became an important part of final processing at the hospital and received the official approval of the War Department. The work which was started at Tilton General Hospital has now been extended to other Army general, regional, station, and convalescent hospitals in the United States.

C. PREPARATION OF COUNSELORS

In extending the program to all points of separation, it was recognized immediately that the effectiveness of the counseling procedure would depend upon a staff of able counselors who could approach each soldier leaving the service with a real concern for his welfare and an appreciation of the problems he was facing. Accordingly, a plan for securing and training military counselors was submitted to the Chief of Staff, Army Service Forces, 28 April 1944 and approval was obtained to establish a service school at Fort Dix, New Jersey to train separation classification and counseling personnel on the materials and techniques of vocational and educational counseling. The first class, which continued for five weeks, began 22 July 1944. At the beginning of the third class, 14 October 1944, the course was reduced to four weeks.

Both officer and enlisted personnel selected for training at the school must meet the minimal requirements of age, 25 years, and Army General Classification Score, 110. Personal qualifications considered essential are the ability to become acquainted quickly with people, to evaluate them intelligently, and to win rather than command cooperation. Preference is given to the more mature individuals, and those with considerable experience in Army personnel procedures. Enlisted men are required to have completed at least two years of college or university, including courses in psychology, personnel administration, business administration, industrial management, or social administration. Graduation from a four-year college or university, with courses in the same subjects, is required of officers. In addition to the educational qualifications, a minimum of two years' civilian experience is required of both officers and enlisted men in any one of the fields of vocational and educational counseling, social service, school administration or teaching, personnel administration, occupational classification, interviewing, or business at the executive level. An additional two years of work experience may be substituted for two years of college training for either officers or enlisted men. Military experience in personnel work may be substituted in equivalent amount for civilian occupational experience.

The faculty teaching the Separation Classification and Counseling Course

includes officers and enlisted men qualified by active participation in counseling, both in the Army and in civilian life. The objectives of the course are to orient the men to Separation Classification and Counseling, to give them experience in the use of the tools employed by counselors, to give them information on Army regulations with respect to discharge, to provide them with information on educational, industrial, and occupational conditions in the communities to which the veterans will return, and to acquaint them with the various agencies concerned with the readjustment of veterans.

Effective 21 January 1945 the training course was transferred from Fort Dix, New Jersey to The Adjutant General's School, Fort Sam Houston, Texas where it became an integral part of The Adjutant General's personnel training program. Orders recently have been issued to move The Adjutant General's School from Fort Sam Houston, Texas to Camp Lee, Virginia on 2 May 1945.

D. OPERATIONS IN SEPARATION CENTERS

As a result of the experience of the last war, when the one all-absorbing question of the men seemed to be "How quickly can I get out of the Army?", it was decided to simplify the separation process so that a man who arrived at a separation center with his records reasonably complete would be on his way home within two days. To accomplish this it was necessary to develop streamlined machinery by which soldiers about to be discharged could be given a final physical examination, have their financial accounts put in order, paid, have their uniform and equipment checked, have the necessary records and forms brought up to date, and receive counseling—all in a period of forty-eight hours. It was decided as a matter of policy that counseling would have to be organized so that it would not retard the flow of men through the separation center. Consequently, the average time allowed for counseling a soldier has been about thirty-five minutes. Occasionally the interviews last as long as two hours, when the flow of discharges is relatively light or when special problems arise. This time limitation reduces the scope of counseling, but on the other hand, the effectiveness of the work would be more seriously impaired if the men felt that they were being delayed too long at the separation center.

All enlisted men and officers being separated from the service are required to have the Form 100 filled out by a counselor before leaving the separation center. The original copy of the Form is signed by an officer and given to the soldier for his own use. A carbon copy is mailed to the Veteran's Facility nearest the soldier's civilian residence. The soldier is given an opportunity during the time the Form 100 is being prepared to ask any questions he may have concerning his discharge and his rights and benefits as a veteran. Experience has shown that answering such questions is one of the most valuable contributions of the counselor at the Separation Center.

Some of the questions asked by the soldiers frequently lead into vocational, educational or personal problems. If the soldiers express a desire to pursue a problem further and to receive counseling on it, they are given the opportunity to do so. Such counseling, however, is entirely voluntary. To date, approximately sixty per cent of all soldiers processed at separation centers have expressed a desire for such counseling.

E. HOSPITAL PROCEDURES

Separation Classification and Counseling is provided likewise in Army regional, station, general, and convalescent hospitals. The separation counselor

at the hospital completes the Form 100, answers the soldier's questions, and provides the soldier with an opportunity for vocational, educational, and personal counseling. Counseling in hospitals differs from that in separation centers chiefly in that the men being discharged have a physical disability which may affect their occupational readjustment. This, of course, increases the amount of time necessary for effective counseling. Such time is available at the hospital since it is possible to see the soldier three weeks or more prior to the time he is discharged, thus enabling the counselor to devote a longer period of time to each interview and to permit the soldier to return for additional interviews if he so desires.

F. MATERIALS

The military counselor has access to a large amount of information gathered through cooperative arrangements with governmental agencies, business, industry, labor organizations, and community welfare groups. A *Military Counselor's Kit* is furnished to each counselor. It includes pertinent Army regulations and manuals; such tools as the Dictionary of Occupational Titles, Interviewing Aids, and Special Aids for Placing Military Personnel in Civilian Jobs; materials dealing with educational opportunities, labor market information, rehabilitation and placement of the handicapped; and directories of national local agencies established to offer assistance or information to the ex-soldier.

In addition to materials immediately available in counseling booths, separation centers and hospitals maintain a *Library for Counselors* for more extensive reading or reference. Detailed information on many subjects considered useful to the counselor is included in this library. Information and reference materials are kept current through regular additions, changes, and periodic bulletins issued to all centers and hospitals by the Separation Counseling Subsection of The Adjutant General's Office.

There is also available at each separation center and hospital an *Occupational Library*. The library contains information on specific occupations in which the soldier may be interested and is provided for his use while he is in the process of separation. Duplicate copies of some of the materials are available for the soldier to take with him.

G. REFERRALS

The United States Employment Service, the Veterans Administration, the Selective Service System, the United States Civil Service Commission, and the American Red Cross have authorized representatives at separation centers and hospitals, and military counselors make referrals to them whenever they discover individuals who need expert assistance in the counseling areas of the respective agencies. These representatives also act as advisers to the military counselors and supply them with current information on the veterans' services of the various agencies.

Referrals are also made by the military counselors to governmental and civilian agencies outside the Army. Each counselor has in his *Counselor's Kit* a large number of directories which provide him with the names and addresses of various national agencies throughout the United States. From these the counselor provides each dischargée with the names and addresses of those agencies in his home community which are prepared to assist him in his civilian readjustment.

H. TESTING

No general testing program is administered to the soldiers at the time of separation from the service, but any separatee may request and be given standardized tests. Such requests occur at separation centers rarely, due to the limitation of time, but counselors at hospitals receive frequent requests for special tests. At both separation centers and hospitals the counselors have access to test scores of enlisted personnel which appear in their Army records.

I. CONCLUSION

Separation Classification and Counseling Sections, which are now established in hospitals and separation centers in all of the nine service commands in the United States, are providing the men who are being separated from the service with a personal copy of an official transcript of their Army experience, answering their questions concerning their discharge and their benefits as veterans, giving them an opportunity for personal counseling, and finally, referring them to those agencies in their home communities where they may obtain further assistance.

In setting up this program, the Army is only beginning a service which, if it is to be effective, must be continued by other agencies outside the Army. The job must be completed by civilian counselors. It is the responsibility of schools, colleges, employment agencies, social service groups, industry, labor organizations, and other community groups to take up the work which has only been started by the Army, and carry it through to a successful conclusion.

AVIATION PSYCHOLOGY IN THE ARMY AIR FORCES

THOMAS W. HARRELL

*University of Illinois**

This article outlines some studies and applications of aviation psychology in the Army Air Forces that are independent of the program of the Psychological Branch, Research Division, Air Surgeon's Office, recently described in the *Psychological Bulletin*. A few of these studies have been published, but the majority of them will probably not be published in detail until after the war. Some of the key personnel responsible for the programs will be cited, but no attempt will be made to mention all of the many psychologists who have collaborated.

Selection procedures have been studied for airplane mechanics and for several other ground technicians. These include airplane armorers, sheet metal workers, machinists, radio operators and mechanics, camera technicians, weather observers and forecasters, instrument specialists, cryptographers, and Link trainer operators and mechanics. (AAF civilian technicians are mentioned below.) Richard W. Faubion is prominently identified with almost all of these researches. He has been responsible for many studies correlating various test scores with class-room tests and shop performance. He has also assisted in developing an objective criterion of machinists' skill. Roger M. Bellows has collaborated in some of the studies mentioned above and has also compared performance ratings in tactical units to predictors of success in training. Contributors to various of these investigations have been Sidney Adams, Earle Cleveland, Carlton Wilder, Wendell Gray, Addison Clarke, and Edwin R. Henry.

Even before the war began, Carroll Shartle, Walter Studdiford, and associates had made considerable progress on the job analysis of all enlisted men's jobs in the AAF (as well as in the Army Ground and Service Forces). Translating these analyses into descriptions for use has been done largely by Army officers. The Adjutant General's Office has been responsible for the final printed product of AAF job descriptions as is true for all the Army.

In the AAF, Alvord Finn became by knowledge and position the authority on job descriptions. There has always been a problem in Army job descriptions as to how far to go in breaking down jobs so as to make the title specific and accurate. If too much refinement is introduced the system becomes so complicated as to become unwieldy. This complication has been particularly true of enlisted men's jobs, for which the Military Occupational Specialty Code Numbers have not been arranged in numerically meaningful family groups as is done in the code for officer titles or in the Dictionary of Occupational Titles. At a time when considerable confusion existed in the AAF occupational structure for enlisted men, because of considerable specificity and frequent changes in job titles and descriptions, Finn started to work. His product has been accepted as showing good judgment in reaching a proper balance between too much refinement and too crude groupings. The results are evidenced in the part dealing with occupational structure in AAF Manual 35-1, Military Personnel Classification and Duty Assignment.

Job analyses were also made of navigators and bombardiers, duties usually performed by officers. The fact that officer positions were not generally analyzed in the AAF had led naturally to the later job descriptions for officers

* On leave, Major, Air Corps, A-1 Section, Hq. 15th Air Force.

being considerably inferior in accuracy to those for enlisted men. This greater attention to enlisted personnel procedures is fairly typical in the American Army, although in the German Army greater relative stress has been placed on officer personnel procedures.

Related to their job analyses were oral trade tests that Shartle and his associates developed. Beatrice Dvorak and Luigi Petrullo were directly responsible for these trade tests, almost all of which were originally standardized on samples in the civilian population. AAF as well as the rest of the Army has been authorized to use these trade tests. Their application to AAF enlisted men has been considerable and to civilian technicians has been less.

In April 1940, a study was begun of bombardier selection and training which preceded the later studies on this subject by the Air Surgeon. Faubion, L. L. Thurstone and Bellows analyzed the accuracy of practice bombings as a validity criterion. These bombings at first appeared to give an automatic index to the effectiveness of a bombardier. He either hits the target or misses it. In the case of misses the extent of error can be conveniently measured in unquestionably objective terms. As it turned out the reliability of practice bombings was so slight as to be useless. Bellows and Thurstone found that important variables which mask the influence of the bombardiers' skill are the pilots' skill, the aircraft and weather. Bellows contributed to improving the accuracy of a criterion of the success of bombardiers, and also made important studies of bombardier training.

Before the Air Surgeon took over the project of aerial navigator selection and training, Faubion, Wilder and Julien Christensen were studying it. It was early apparent that mathematics aptitude was the most important test predictor of navigator competence.

Prior to the introduction of the Aviation Cadet Qualifying Examination, educational achievement tests were used as an entrance requirement for training as pilot, bombardier, and navigator. The educational tests were shortened, improved in reliability, rendered susceptible to machine scoring, and used for one round by Clyde Coombs and associates in the Adjutant General's Office. A revision of the educational tests was completed but not used because of the acceptance of the Aviation Cadet Qualifying Examination.

Preliminary study of pilot selection was made by Faubion and C. E. Obermann, resulting in quite significant validity coefficients between records of success in flight training and test scores. This was shortly before the Air Surgeon's psychologists took over.

Although not nearly as well known by the public as personnel in uniform the AAF has a very large number of civilian employees. Classification tests for various technicians have been developed by Roger T. Lennon and earlier studies made by S. A. Switzer. Some materials developed by Shartle, Dvorak and Petrullo have been used in the studies and applications at the AAF Technical Service Command.

Synthesis of jobs into families based on similar work and similar aptitude and other personnel requirements has been accomplished by Shartle, Dvorak and Petrullo. Some of the job families were made up because of the interest of AAF and used by the AAF.

Since Army General Classification Test grades for all AAF enlisted men in the United States were punched on Hollerith cards, it has been possible to find the General Classification Test level by Military Occupational Specialty in a population of 800,000. Breakdowns were present between Air Corps and services such as Ordnance, Quartermaster, etc., with AAF.

Data showing approximately 100,000 AGCT scores for civilian occupations have been collected by Webster and Faubion and have been analysed by Margaret Strong Harrell.

A study of attitudes toward job assignment in a cross section of AAF enlisted men has been conducted by Samuel A. Stouffer and his staff. The results contributed to a major improvement in methods adopted for efficient assignment of military personnel. Advising Stouffer in this study were Quinn McNemar and Frank Stanton.

Development and application of methods of correct classification and efficient duty assignment of AAF officers and enlisted men have used the efforts of a number of psychologists. Some of these are Esco Obermann, Sidney Adams, Harry McNeill, Willis McCann, Alvord Finn, Thomas Snee, Carlton Wilder, and A. S. Switzer. These activities of Classification Officers are in large part personnel administration, but they do require some tasks of a professional psychological nature as well as utilizing psychological training in the personnel administrative phase of the duties. Training and supervising interviewers and clerks into a smooth running organization is a major duty of the first echelon Classification Officer which is probably not psychological in the professional sense. Psychological training does help. Actual interviewing by the Classification Officer is often a task requiring professional skill which will be referred to in connection with the activities of Personnel Consultants which merge at some areas into those of Classification Officers. Interpretation and administration of classification and aptitude tests are often professional chores. Particularly the third and fourth echelon Classification Officers have been engaged in making job analyses, job descriptions, and psychographs of characteristics most necessary for success in certain jobs.

During 1943, Classification and Personnel officers in the AAF developed and prosecuted a program of classification and duty assignment that was outstanding in the Army. Some of the important phases were:

1. Training of an enlisted specialist to maintain records on classification and duty assignment in each squadron and group. Dozens of men trained in the ASTP course in personnel psychology augmented the total number which ran well into four digits.
2. Increasing the importance of the Classification Officer in higher headquarters by authorizing a higher rank. For example, in several Air Force Headquarters the authorized rank for the Classification Officer was increased from First Lieutenant to Lt. Colonel.
3. Preparation and distribution of a digest of Army Regulations, AAF Regulations, and other directives so that each busy squadron commander had a single document giving procedures in correct classification and duty assignment.
4. Traveling personnel classification audit teams to indoctrinate key command and key staff personnel, and to discover existing malassignments and recommend their correction.

The results of the aggressive prosecution of correct classification and assignment led to a significantly better use of the training of technicians, an improvement which was measured in an inspection of a cross-section of units. It also led naturally to a greater classification consciousness on the part of commanders and personnel officers which lasted beyond the active 1943 campaign.

Sometimes difficult and even impossible to distinguish from classification work in the Army is the work of Personnel Consultants. In the AAF as well as in other parts of the Army, Classification Officers are often also qualified and classified as Personnel Consultants. The latter job title is described in Army

manuals as more purely psychological than is the job of Classification Officer. Since the authorized rank on Tables of Organization is customarily higher for Classification Officers than for Personnel Consultants, efficient consultants have sometimes been upgraded into the more administrative position. A large share of personnel consulting in the Army has dealt with "problem children" of low ability, low education, or inadequate personality. The AAF due to its high percentage of highly skilled technical jobs has received a minimum of these persons possessing low ability and education. There have been some who needed clinical advice, and where possessing latent ability, needed training. AAF Personnel Consultants who have done this job include Obermann, H. M. Skeels, McCann, McNeill, Switzer, and Snee.

One of the prime points mentioned in the 1943 AAF campaign to minimize malassignment was the introduction of the Personnel Classification Audit. This was used to bring about the salvage of approximately 50,000 highly trained specialists in the United States. Their qualifications had been lost in the explosive growth of the AAF, but when they were rediscovered they were promptly reassigned. Even in several active combat theaters overseas, the Personnel Classification Audit has proved effective in finding and using badly needed technicians. In one theater it has been extended to accumulate basic data concerning the actual military occupational specialty needs of units.*

In conclusion there has been a considerable amount of research and application of aviation psychology in the Army Air Forces independent of the program sponsored by the Air Surgeon. Specifically, studies have been made of methods for improving the selection of airplane mechanics and other aviation ground technicians; job analyses, job families and job descriptions in terms of an effective occupational structure; selection and training of bombardiers and navigators; educational examination of prospective pilots; aptitude tests for civilian technicians; Army General Classification Test grades for military and civilian occupations; attitudes towards job assignment of enlisted men; and classification and duty assignment procedures including the Personnel Classification Audit.

* The author has published on a few of the subjects discussed above and has worked on some of the other subjects. It is not possible at this time and place to give a list of references.

A BIBLIOGRAPHY OF NAVAL CLINICAL PSYCHOLOGY*

IRIS STEVENSON, LT. (J.G.) H(W) USNR

For four years clinical psychology has been functioning as an integral part of the neuropsychiatric program of the Bureau of Medicine and Surgery in the Navy Department. Psychologists have been assigned to training station selection units, naval hospitals, precommissioning ships, receiving ships, embarkation centers, disciplinary activities, and the various retraining programs. Many publications have issued from these Naval activities which are of interest both to civilian psychologists in like activities and to those with an historical interest in the development of psychology in the military services. Since many of these articles have been published in journals not familiar to psychologists, it seems appropriate to gather them together in a convenient, accessible bibliography.

BIBLIOGRAPHY

1. BENTON, A. L. Rorschach performance of suspected malingerers. *J. abnorm. soc. Psychol.*, 1945, 40, 94-96.
2. BERDIE, R. F. Measurement of adult intelligence by drawing. *J. appl. Psychol.*, (in press).
3. BERDIE, R. F. Range of interests. *J. appl. Psychol.*, (in press).
4. BERDIE, R. F. & WALLEN, R. Some psychological aspects of enuresis. *Amer. J. Orthopsychiat.*, (in press).
5. COLEMAN, J. G. A rapid determination of intellectual adequacy for the Naval Service. *Nav. med. Bull., Wash.*, 1944, 42, 1093-1095.
6. CORNSWEET, A. C., WITTON, C. L. & HUNT, W. A. Psychiatric examination of non-swimmers. *Nav. med. Bull., Wash.*, (in press).
7. DILLENBERG, S. M. & LOCKE, B. Neuropsychiatric clinic at a Naval construction training center. *Nav. med. Bull., Wash.*, 1943, 41, 1076-1082.
8. DRUMMOND, W. A., JR., WHEELER, J. A., JR., WILLIAMS, S. B. & HARRIS, J. D. Experiences in the use of the Kent battery. *Nav. med. Bull., Wash.*, 1945, 44, 44-45.
9. EATON, H. C., GALICO, M. W. & CAMPION, C. A. Care in the diagnosis of mental deficiency. *Amer. J. ment. Defic.*, (in press).
10. GERSTLE, M., JR., WAGNER, R. L. & LODGE, T. The inapt Naval recruit. *Nav. med. Bull., Wash.*, 1943, 41, 480-491.
11. HARRIS, D. H. Low incidence of malingering among Navy draftees. *Nav. med. Bull., Wash.*, 1944, 43, 737-738.
12. HARRIS, D. H. What goes on in a moron's mind? *Hygeia*, 1944, 22, 262-263.
13. HARRIS, H. I., WITTON, C. L. & HUNT, W. A. The value of the electroencephalogram in the prognosis of minor head injuries. *War med.*, 1943, 4, 374-379.
14. HILDRETH, H. M. Single-item tests for psychometric screening. *J. appl. Psychol.*, (in press).
15. HILDRETH, H. M. & BRADY, J. P. Characteristics of a disciplinary group in a Naval hospital. *Nav. med. Bull., Wash.*, (in press).
16. HILDRETH, H. M. & CLOSSON, J. H. Experiment in psychotherapy during selection examining. *Nav. med. Bull., Wash.*, 1944, 43, 39-43.
17. HILDRETH, H. M. & HILL, J. M. Hidden dementia praecox. *Nav. med. Bull., Wash.*, 1944, 43, 483-489.

* The opinions or assertions contained herein are the private ones of the writer and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

18. HILDRETH, H. M., WHEELER, J. A. & WILLIAMS, S. B. A psychometric procedure for screening mental defectives. *Nav. med. Bull., Wash.*, 1944, **43**, 316-320.
19. HUNT, W. A. Clinical psychology in the Navy. *J. clin. Psychol.*, (in press).
20. HUNT, W. A. Psychology in the selection of recruits at the U. S. Naval Training Station, Newport, Rhode Island. *Psychol. Bull.*, 1943, **40**, 598-600.
21. HUNT, W. A. The psychologist in the psychiatric program at the Naval training stations. *Psychol. Bull.*, 1944, **41**, 557-560.
22. HUNT, W. A. & OLDER, H. J. Detection of malingering through psychometric tests. *Nav. med. Bull., Wash.*, 1943, **41**, 1318-1323.
23. HUNT, W. A. & OLDER, H. J. Psychometric scatter pattern as a diagnostic aid. *J. abnorm. soc. Psychol.*, 1944, **39**, 118-123.
24. HUNT, W. A., WITTSON, C. L. & HARRIS, H. I. A case of temporary mental impairment following a petit mal attack. *J. abnorm. soc. Psychol.*, 1942, **37**, 566.
25. HUNT, W. A., WITTSON, C. L. & HARRIS, H. I. The screen test in military selection. *Psychol. Rev.*, 1944, **51**, 37-46.
26. HUNT, W. A., WITTSON, C. L. & JACKSON, M. M. Selection of Naval personnel with special reference to mental deficiency. *Amer. J. ment. Defic.*, 1944, **48**, 245-252.
27. HUNT, W. A., WITTSON, C. L., HARRIS, H. I., SOLOMON, P. & JACKSON, M. M. Psychometric procedures in the detection of the neuropsychiatrically unfit. *Nav. med. Bull., Wash.*, 1943, **41**, 471-480.
28. LEWINSKI, R. J. Discriminative value of the sub-tests of the Bellevue Verbal Scale in examining Naval recruits. *J. gen. Psychol.*, 1944, **31**, 95-99.
29. LEWINSKI, R. J. Experience with the Herring Revision of the Binet-Simon Tests in the examination of subnormal Naval recruits. *Amer. J. ment. Defic.*, 1943, **48**, 157-161.
30. LEWINSKI, R. J. Illiteracy. *Nav. med. Bull., Wash.*, 1944, **42**, 150-154.
31. LEWINSKI, R. J. Intertest variability of subnormal Naval recruits on the Bellevue Verbal Scale. *J. abnorm. soc. Psychol.*, 1943, **38**, 540-544.
32. LEWINSKI, R. J. Military considerations of mental deficiency. *Mil. Surg.*, 1944, **95**, 385-390.
33. LEWINSKI, R. J. Notes on the original and revised Kent scales in the examination of Naval recruits. *J. educ. Psychol.*, (in press).
34. LEWINSKI, R. J. Performance of Naval recruits on the Kent Oral Emergency Test and the verbal battery of the Bellevue-Wechsler Adult Intelligence Scale. *Amer. J. Orthopsychiat.*, 1943, **13**, 138-140.
35. LEWINSKI, R. J. Psychological services in the Medical Department. *Nav. med. Bull., Wash.*, 1943, **41**, 137-142.
36. LEWINSKI, R. J. A qualitative analysis of the Kent Oral Emergency Test as a clinical instrument in the examination of Naval recruits. *J. appl. Psychol.*, 1942, **26**, 316-331.
37. LEWINSKI, R. J. & PENNINGTON, L. A. Professional services and training requirements of the psychologist in Class H-V(S) of the Navy. *Psychol. Bull.*, 1943, **40**, 519-527.
38. LOCKE, B., BROMBERG, W. & APUZZO, A. A. A psychological study of desertion and overleaves in the United States Navy. *Nav. med. Bull., Wash.*, (in press).
39. LOCKE, B., CORNSWEET, A. C., BROMBERG, W. & APUZZO, A. A. Study of 1,063 Naval offenders. *Nav. med. Bull., Wash.*, 1945, **44**, 73-86.
40. LOUITT, C. M. A study of 400 psychologists commissioned in the U. S. Naval Reserve. *Psychol. Bull.*, 1944, **41**, 253-257.
41. LOUITT, C. M. Psychological work in the United States Navy. *J. consult. Psychol.*, 1941, **5**, 225-227.
42. LOUITT, C. M. Psychologists in the Navy. *Psychol. Bull.*, 1943, **40**, 375-376.

43. MACPHEE, H. M. & PENNINGTON, L. A. The identification of cases of chronic motion sickness by means of preliminary military examinations. *J. soc. Psychol.*, (in press).
44. MITCHELL, M. B. The clinical psychologist in a Naval hospital. *Psychol. Bull.*, 1944, **41**, 561-564.
45. OTNESS, H. R. Illiteracy. *Nav. med. Bull., Wash.*, (in press).
46. OTNESS, H. R. & STOUFFER, G. A. W. The Naval offender. *Nav. med. Bull., Wash.*, (in press).
47. OTNESS, H. R., STOUFFER, G. A. W. & JOHNSTON, W. C. B. A method of psychological screening of Naval offenders. *Nav. med. Bull., Wash.*, (in press).
48. PENNINGTON, L. A. & MEARIN, R. J. The frequency and significance of a movement mannerism for the military psychiatrist. *Amer. J. Psychiat.*, 1944, **100**, 628-632.
49. PENNINGTON, L. A. & MEARIN, R. J. Frequency of craniocerebral injuries in relation to military screening examinations. *War Med.*, 1943, **4**, 465-470.
50. PENNINGTON, L. A. & MEARIN, R. J. The frequency of head injuries in relation to games and sports. *Athletic Journal*, 1944, **24**, 43-45.
51. RAINES, G. N. & BROOMHEAD, E. Rorschach studies on combat fatigue., (in press).
52. RICHARDS, T. W. Psychologist in the Naval hospital. *Psychol. Bull.*, 1944, **41**, 565-567.
53. RICHARDS, T. W. The appraisal of Naval psychiatric casualties by the Rorschach method. *Nav. med. Bull., Wash.*, 1943, **41**, 788-799.
54. SOLOMON, P., BROWN, M. & JONES, M. R. Neuropsychiatry in the U. S. Marine Corps Women's Reserve. I. Methods and procedures in the neuropsychiatric selection of recruits. *Amer. J. Psychiat.*, (in press).
55. SOLOMON, P., HARRIS, H. I., WITTON, C. L. & HUNT, W. A. Electroencephalography in the selection of Naval recruits. *Nav. med. Bull., Wash.*, 1943, **41**, 1310-1317.
56. STOUFFER, G. & GRAMLICH, F. W. Functions of the psychologist in the Neuropsychiatric Unit at Farragut Naval Training Station. *J. consult. Psychol.*, 1943, **7**, 211-215.
57. WALLEN, R. Food aversions of normal and neurotic males. *J. abnorm. soc. Psychol.*, (in press).
58. WALLEN, R. Some testing needs in military clinical psychology. *Psychol. Bull.*, 1944, **41**, 539-542.
59. WITTON, C. L. & HUNT, W. A. Psychiatric selection at the precommissioning level. *Nav. med. Bull., Wash.*, (in press).
60. WITTON, C. L., HARRIS, H. I. & HUNT, W. A. An evaluation of the brief psychiatric interview. *J. Psychol.*, 1943, **16**, 107-114.
61. WITTON, C. L., HARRIS, H. I. & HUNT, W. A. Cryptic nostalgia. *War Med.*, 1943, **3**, 57-59.
62. WITTON, C. L., HARRIS, H. I. & HUNT, W. A. Detection of the neuropsychiatrically unfit. *Nav. med. Bull., Wash.*, 1942, **40**, 340-346.
63. WITTON, C. L., HARRIS, H. I. & HUNT, W. A. Neuropsychiatric examination of recruits. *War Med.*, 1942, **2**, 944-951.
64. WITTON, C. L., HUNT, W. A. & OLDER, H. J. The use of the multiple choice group Rorschach test in military screening. *J. Psychol.*, 1944, **17**, 91-94.
65. WITTON, C. L., HARRIS, H. I., HUNT, W. A., SOLOMON, P. & JACKSON, M. M. The neuropsychiatric selection of recruits. *Amer. J. Psychiat.*, 1943, **99**, 639-650.

CLINICAL PSYCHOLOGY IN THE ARMY: A BIBLIOGRAPHY

C. H. PATTERSON, 2ND LT., AGD

The Army has only recently been utilizing clinical psychologists as such. In 1943, six psychologists were commissioned in the Sanitary Corps, Medical Department, for service in General Hospitals (24). At present clinical psychologists are being commissioned in the Adjutant General's Department for similar duty (43). This program is too recent to have resulted in any published reports of experience or research, though undoubtedly such will soon be forthcoming.

However, psychologists have in many instances been performing duties of a clinical nature, and several reports of this work have appeared. A number of them are concerned with the Army Special Training Units (1, 3, 31, 42), or with the Army Specialized Training Program (20, 26, 28).

In the Army, psychiatrists have made many contributions to fields which are of interest to clinical psychology, particularly the field of mental hygiene. Therefore, a number of reports in this area, though written by psychiatrists, have been included in the following bibliography (5, 6, 7, 11, 12, 13, among others).

The following list brings together published reports of clinical psychology in the Army. For security and other reasons, much material remains as yet unpublished. Thus, a complete list, even of the work accomplished to date, may not be available until some time after the duration.

BIBLIOGRAPHY

1. ALTUS, W. D. & BELL, H. M. The validity of certain measures of maladjustment in an Army Special Training Center. *Psychol. Bull.*, 1945, **42**, 98-103.
2. ATWELL, C. R., BLOOMBERG, W. & WELLS, F. L. Psychometrics at an Army induction center. *New Engl. J. Med.*, 1941, **224**, 898-899.
3. BELL, H. M. & ALTUS, W. D. The work of psychologists in the Ninth Service Command Special Training Center. *Psychol. Bull.*, 1944, **41**, 187-191.
4. BRUSSEL, J. A. & HITCH, K. S. The military malingerer. *Mil. Surgeon*, 1943, **93**, 33-44.
5. COHEN, R. R. Mental hygiene for the trainee. *Amer. J. Psychiat.*, 1943, **100**, 62-71.
6. COHEN, R. R. Officers and their relation to a mental-hygiene program for trainees. *Ment. Hyg.*, 1944, **28**, 368-380.
7. COHEN, R. R. Factors in adjustment to Army life. A plan for preventive psychiatry by mass psychotherapy. *War Med.*, 1944, **5**, 83-91.
8. DEUTSCHER, M. The clinical psychologist in an AAF Mental Hygiene Unit. *Psychol. Bull.*, 1944, **41**, 543-547.
9. EBAUGH, F. G. Misfits in the military service. *Dis. nerv. System*, 1943, **4**, 3-8.
10. EVANS, G. R. The Army separation classification and vocational counseling program. *Occupations*, 1944, **23**, 69-74.
11. FREEDMAN, H. L. The unique structure and function of the Mental-Hygiene Unit in the Army. *Ment. Hyg.*, 1943, **27**, 608-653.
12. FREEDMAN, H. L. The services of the military Mental-Hygiene Unit. *Amer. J. Psychiat.*, 1943, **100**, 34-40.
13. FREEDMAN, H. L. Mental-hygiene first aid for precombat casualties. *Ment. Hyg.*, 1944 (April).
14. GILBERT, G. M. The personnel consultant in an Army Training Center. *Psychol. Bull.*, 1944, **41**, 180-186.

15. GILLMAN, R. D. & RAMSEY, G. V. A.A.F. convalescent-rehabilitation program. *Psychol. Bull.*, 1944, 41, 543-547.
16. GOLDSTEIN, H. A malingering key for mental tests. *Psychol. Bull.*, 1945, 42, 104-118.
17. GREENWOOD, E. D., SNIDER, H. L. & SENTI, M. M. Correlation between the Wechsler Mental Ability Scale, Form B, and Kent Emergency Test (E-G-Y) administered to Army personnel. *Amer. J. Orthopsychiat.*, 1944, 14, 171-173.
18. HEATH, S. R., JR. The military use of the rail-walking test as an index of locomotor coordination. *Psychol. Bull.*, 1943, 40, 282-284.
19. HEATH, S. R., JR. Clinical significance of motor defect, with military implications. *Amer. J. Psychol.*, 1944, 57, 482-499.
20. HENDERSON, R. W. Psychological consultation service in an Army Specialized Training Program STAR Unit. *Psychol. Bull.*, 1944, 41, 395-399.
21. JENSEN, M. B. & ROTTER, J. B. The validity of the multiple choice Rorschach test in officer candidate selection. *Psychol. Bull.*, 1945, 42, 182-185.
22. JENSEN, M. B., ROTTER, J. B. & HARRISON, R. Military psychology in the Armored School. *Psychol. Bull.*, 1945, 42, 91-97.
23. KAPLAN, N. Salvaging illiterates in the Army. *Occupations*, 1944, 23, 74-76.
24. LAYMAN, J. W. Utilization of clinical psychologists in the General Hospitals of the Army. *Psychol. Bull.*, 1943, 40, 212-216.
25. LAYMAN, J. W. Problems of adjustment referred to General Hospitals of the Army. *J. abnorm. soc. Psychol.*, 1943, 38, 155-164 (No. 2 Suppl.).
26. LAYMAN, J. W. The Army Specialized Training Program: The STAR Unit. *J. Psychol.*, 1944, 17, 371-381.
27. LAYMAN, J. W. Reconditioning program: Army General Hospitals. *Psychol. Bull.*, 1944, 41, 515-518.
28. LAYMAN, J. W. & BOGUSLAVSKY, G. W. The relationship between ability and achievement in the Army Specialized Training Program. *J. Psychol.*, 1944, 18, 45-54.
29. LEVERENZ, C. W. Minnesota Multiphasic Personality Inventory: An evaluation of its usefulness in the psychiatric service of a station hospital. *War Med.*, 1943, 4, 618-629.
30. LIPKIN, S. The personnel consultant in an Army rehabilitation center. *Psychol. Bull.*, 1944, 41, 524-531.
31. MCQUITTY, L. L. A program for the classification and training of retarded soldiers. *Psychol. Bull.*, 1943, 40, 770-779.
32. MCQUITTY, L. L. Developing military psychologists. *J. appl. Psychol.*, 1944, 28, 72-78.
33. MASKIN, M. M. & ALTMAN, L. L. Military psychodynamics. Psychological factors in the transition from civilian to soldier. *Psychiat.*, 1943, 6, 263-269.
34. MENNINGER, W. C. The problem of the mentally retarded in the Army. *Amer. J. Ment. Defic.*, 1943, 48, 55-61.
35. OLKON, D. M. Effect of war and Army life contingencies on the behavior and breakdown of the inductee and soldier. *Dis. nerv. Syst.*, 1944, 5, 243-249.
36. ROSENBERG, S. J. & LAMBERT, R. H. Analysis of certain factors in histories of two hundred soldiers discharged from the Army for neuropsychiatric disabilities. *Amer. J. Psychiat.*, 1942, 99, 164-167.
37. ROSENBERG, S. J. The psychiatric service of an Army station hospital. *Amer. J. Psychiat.*, 1943, 99, 864-868.
38. ROTTSMAN, W. The guardhouse inmate; with a brief discussion of the "psychopathic personality." *War Med.*, 1944, 5, 271-279.

39. SCHNEIDER, A. J. N., LAGRONE, C. W., JR., GLUECK, E. T. & GLUECK, S. Prediction of behavior of civilian delinquents in the Armed Forces. *Ment. Hyg.*, 1944, 28, 1-20.
40. SCHREIBER, J. Morale aspects of military hygiene. *Dis. nerv. Syst.*, 1943, 4 (No. 7).
41. SEIDENFELD, M. A. The Adjutant General's School and the training of psychological personnel for the Army. *Psychol. Bull.*, 1942, 39, 381-384.
42. SEIDENFELD, M. A. The Special Training Units of the Army. *Psychol. Bull.*, 1943, 40, 279-281.
43. SEIDENFELD, M. A. Clinical psychology in Army hospitals. *Psychol. Bull.*, 1944, 41, 515-518.
44. SIMON, A. Social data in psychiatric casualties in the Armed Services. *Amer. J. Psychiat.*, 1942, 99, 348-353.
45. STEVENS, P. The station hospital psychologist. *J. consult. Psychol.*, 1944, 8, 319-322.
46. STEINBERG, D. L. & WITTMAN, M. P. Etiologic factors in the adjustment of men in the Armed Forces. *War Med.*, 1943, 4, 129-139.
47. SUPER, D. E. Clinical research in the aviation psychology program of the Army Air Forces. *Psychol. Bull.*, 1944, 41, 551-556.
48. WALLEN, R. Some testing needs in military clinical psychology. *Psychol. Bull.*, 1944, 41, 539-542.
49. WELLS, F. L. & SEIDENFELD, M. A. Psychology—in the war and after. *Jr. Coll. J.*, 1944, 14, 265-268.
50. *An Army experiment in retraining psychoneurotic casualties.* Staff, Classification Section, Classification and Replacement Branch. The Adjutant General's Office. *Psychol. Bull.*, 1944, 41, 519-523.
51. *The new Army individual test of general mental ability.* Staff, Personnel Research Section, Classification and Replacement Branch. The Adjutant General's Office. *Psychol. Bull.*, 1944, 41, 532-538.

POST-WAR PSYCHOLOGICAL SERVICES IN THE ARMED FORCES

Two conferences of military psychologists were called by Dr. Robert M. Yerkes at the National Research Council on July 12 and October 31, 1944 to discuss questions concerning psychological work in the post-war military organization. As a result of the deliberations certain recommendations were formulated and agreed upon. Copies of the recommendations were transmitted to the Secretary of War and the Secretary of the Navy with the following letter.

The Honorable

18 December 1944

The Secretary of War (Navy)
Washington, D. C.

Dear Mr. Stimson: (Mr. Forrestal)

I have been authorized by my colleagues to present to you and to the Secretary of the Navy (War) the accompanying report and recommendations relative to provisions for psychological work in the post-war military structure.

The report resulted from the deliberations of two Conferences of Military Psychologists held in Washington 15 July and 31 October, 1944. It was prepared for the Conference group by a special Committee on Report which consisted of Dr. Donald G. Marquis, Chairman, Dr. Walter V. Bingham, Colonel John C. Flanagan, Commander John G. Jenkins, and Dr. Walter S. Hunter.

This document is the product of extensive experience in Military Psychology, dating from 1917 to 1944, and of careful study of the prospective needs of our Armed Services for the development of Human Engineering. It is committed to you in the hope that it may prove useful to your Department in the designing of post-war military structure.

As you very well know, Sir, during World War I our military leaders discovered that specialists in Psychology and other personnel procedures could greatly increase our military might. Military Psychology came to be recognized as a division of Human Engineering, but between wars this novel discovery was forgotten. No provision was made for the development of new methods, their application and evaluation. Consequently, when in 1941 we found ourselves in desperate need of all possible aid in the use of manpower, we were at serious disadvantage by comparison with our enemies. Nevertheless, in the current war the primacy of Human Engineering has been demonstrated and in our military establishments it now is generally recognized that the value of the machine in war, as in peace, depends chiefly on the quality, training and placement of the men who design, use and maintain it. This report is based on the assumption that we, as a people, have now learned the importance of preparedness and will not again risk our existence by freezing our assets between wars.

Respectfully submitted,

Robert M. Yerkes
Chairman of the Conference

Letters received from the War and Navy Department indicate that the recommendations are receiving serious consideration in the highest echelons of both services. Representatives of both services indicate that discussions of the proposal are continuing, especially with reference to the first two recommendations.

RECOMMENDATIONS CONCERNING POST-WAR PSYCHOLOGICAL SERVICES IN THE ARMED FORCES

Nature of Psychological Services. A major task of professional psychologists in the Armed Services is research on the human factor in connection with the following problems: (1) analysis of military tasks and occupations; (2) development of tests and procedures for selection, classification and distribution of

personnel; (3) development of training programs and of methods for evaluating training; (4) design and testing of instrumentalities of warfare (weapons, vehicles, airplane controls, radar, etc.) from the standpoint of the capacities of the personnel using them; (5) development of clinical techniques and procedures for individual examination and consultation services; (6) study of psychophysiological factors such as vision, hearing, and fatigue in the performance of specialized military tasks; (7) development of dependable techniques for ascertaining attitudes or opinions and procedures for use in orientation programs, in morale services, and in psychological warfare.

Military psychologists have also been called upon to supervise the administration of practical programs arising from the results of their research investigations. Routine duties of group-test administration and scoring, interviewing, classification, and assignment are carried out by commissioned and noncommissioned personnel receiving the necessary special training in service schools in which psychologists participate as instructors.

During the present war more than one thousand psychologists have been utilized in specialized work in the Army and Navy (including Air Forces, Marines, Coast Guard, Maritime Service and Office of Strategic Services), and some 300 more have served in civilian status in the War and Navy Departments and in the work of the Office of Scientific Research and Development. The shortage of trained psychologists led the Army to provide for the training of 1,300 enlisted men in Advanced Personnel Psychology in the Army Specialized Training Program. At the present time the demand for qualified psychologists in the Army is far in excess of the supply.

Special Problems of the Post-War Period. The nature of modern warfare renders it imperative that research on military service problems be maintained at a high level of efficiency following the present war. The requirements for achievement of this goal are essentially similar for psychological research and for other sciences and branches of engineering. Research scientists of good ability are not likely to choose a career in the Armed Services unless their professional status is definite and clearly indicated, and opportunity for continued research is adequately assured. Recent surveys indicate that few professional psychologists now in the Armed Forces desire and plan to remain in service after the war. The continuation of an agency such as the Office of Scientific Research and Development to administer research by civilians in university and industrial laboratories could best fulfill the needs of the military services if professional scientists who are members of the Armed Forces can provide direct knowledge of military requirements and effective liaison for the testing and application of research findings.

Recommendations. In view of the considerations outlined above, it is recommended:

1. That a research and development corps be established in the Services with commissioned personnel consisting only of qualified scientists.

2. That provision be made in this research and development corps for psychologist officers. Such specialists should be clearly designated as psychologists in order that problems and proposals within their field of competence will be brought to their attention.

3. That psychologist officers in the research and development corps be available for assignment to duties in the various subdivisions of the Armed Forces for such periods as needed, not only for research and consultation but also for administration of practical programs.

These recommendations are intended to secure the following advantages, among others, for the Armed Forces:

1. To help assure that highly qualified psychologists will enter and remain in military service by making available to them both military and professional status, association with scientific colleagues, and assured opportunities for a continuing career in psychological research and development.

2. To provide for the coordination of psychological research in the various subdivisions of the Armed Forces in which such research and the practical applications of its findings are required; and at the same time to permit intimate study of the special problems of the several subdivisions of the Armed Forces through assignment of research personnel to detached duty in those subdivisions.

3. To provide an effective agency for the promotion and direction of research by psychologists in the reserve corps and in civilian status. The military psychologist should be enabled and required to maintain continuous and close relations with developments in professional psychology in order that he may know the qualified personnel available in the reserve corps and in civilian status; in order also that he shall be in a position to promote and coordinate research on military problems by civilian agencies and personnel; and finally in order that he may so maintain his status and reputation in the profession that he may effectively use civilian experts as consultants and advisors.

In these ways it is believed that the profession of psychology will be able to make its greatest contribution to preparedness and security.

Members of the Conference of Military Psychology

DR. WALTER V. BINGHAM, Chief Psychologist, Classification and Replacement Branch, Adjutant General's Office

DR. CHARLES W. BRAY, Technical Aide, Applied Psychology Panel, National Defense Research Committee

LT. STEUART HENDERSON BRITT, Hqs. Comdr. in Chief U. S. Fleet, Navy Department

DR. LEONARD CARMICHAEL, Chairman, Division of Anthropology and Psychology, National Research Council

LT. RAY N. FAULKNER, Officer-in-Charge, Tests and Research Unit, Standards and Curriculum Division, Bureau of Naval Personnel

DR. SAMUEL W. FERNBERGER, Technical Aide, Division 7.4, NDRC

COL. JOHN C. FLANAGAN, Chief, Psychological Branch, Office of the Air Surgeon

DR. CARL I. HOVLAND, Director of Experimental Studies, Information and Education Branch, Morale Services Division, War Department

LT. COMDR. WILLIAM A. HUNT, Chief Psychologist, Neuropsychiatry Branch, Bureau of Medicine and Surgery

DR. WALTER S. HUNTER, Chief, Applied Psychology Panel, NDRC

COMDR. JOHN G. JENKINS, Chief, Psychology Section, Aviation Medicine, Bureau of Medicine and Surgery

COMDR. C. M. LOUITT, Commanding Officer of Service Schools, Naval Training School, Bainbridge

DR. DONALD G. MARQUIS, Executive Secretary, Army-Navy-OSRD Vision Committee

LT. COL. LOUIS L. MCQUITT, Senior Auditor, Northeastern War Department Personnel Audit Team, AGO

DR. WALTER R. MILES, Vice-Chairman, Committee on Aviation Medicine, NRC

LT. COL. MARION W. RICHARDSON, Chief, Personnel Research, AGO

LT. COL. MORTON A. SEIDENFELD, Chief Clinical Psychologist, AGO

LT. COL. LAURANCE F. SHAFFER, Chief, Psychological Division, AAF Personnel Distribution Command

MR. JOHN M. STALNAKER, Associate Secretary, College Entrance Examination Board

DR. DAEL WOLFLE, Technical Aide, Applied Psychology Panel, NDRC

DR. ROBERT M. YERKES, Yale University.

PSYCHOLOGY AND THE WAR: NOTES

Aviation Psychology "The RAF paid the AAF a compliment in 1944 by adopting our system of air-crew selection and classification. Our psychological testing procedures were also adopted by the Free French.

The battery of 20 psychological tests used for classifying all candidates for pilot, navigator, bombardier, and aerial gunnery training have proved valid in predicting not only an aviation cadet's chance for winning his wings but also the flier's chance for combat success. In a follow-up study of both bomber and fighter pilots in the European theater, it was determined that pilots who had scored highest in the psychological tests administered before they learned to fly tended to be rated by the squadron commanders as most successful in combat. Likewise, those who had the minimum acceptable scores appeared to be most frequently "missing in action."

The Aviation Psychology program in the past year has been extended to a point where it contributes to the number of bombs which hit within the target areas. It has been observed that bombing accuracy, as far as the human element is concerned, depends largely upon the ability of the navigator to set a course to the target area and upon the ability of the bombardier to identify the target and direct his bombs to it. The practice of using Pathfinder airplanes to mark a target and of the units of a formation to drop their bombs on a signal from the lead airplane places a premium on the proficiency of the lead navigator and the lead bombardier.

To aid the commanding officers of heavy bombardment groups in selecting the men best qualified for these key positions, psychological aptitude and proficiency tests have been adopted and are now routine in the European theater. A detachment of aviation psychologists studied bomb strike photographs in a 3-months' series of missions against Germany and found a definite correlation between the accuracy of lead bombardiers and the original aptitude test scores they had received a year or more before, when they were untrained. The Aviation Psychology program was paid off in time, lives and money saved, and through its selection of the raw material has aided in the establishment of an effective combat air force. This has been done at a total cost of less than \$5.00 per candidate tested." Excerpt from the Second Report of the Commanding General of the Army Air Forces to the Secretary of War, Feb. 27, 1945:

Committee on the Relocation of Military Psychologists. The Military Section of the American Association for Applied Psychology has appointed a Committee on the Relocation of Military Psychologists. Among the primary functions of the Committee will be: (1) obtaining information regarding opportunities for employment, refresher training, research, scholarships, and graduate facilities available for returning servicemen; (2) supplying these types of information to all qualified psychologists in the armed forces, and also to those men and women in service who are in the process of becoming psychologists; (3) active cooperation with the Office of Psychological Personnel with reference to the relocation of military psychologists. The members of the Committee are: Captain HUGH M. BELL, AUS (Adjutant General's Office); Colonel JOHN C. FLANAGAN, AUS (Office of the Air Surgeon); Lieut. (j.g.) JOHN G. DARLEY, USNR (Bureau of Medicine and Surgery); and Lieut. STEUART HENDERSON BRITT, USNR (Headquarters, Commander in Chief, U. S. Fleet), as *Chairman*. Correspondence should be addressed to the Committee, c/o Office of Psychological Personnel, 2101 Constitution Ave. N.W., Washington, D.C.

OSRD Project on Rehabilitation at Stanford. A project for research on the "Social Psychological Rehabilitation of the Physically Handicapped" is the subject of a contract between Stanford University and the Office of Scientific Research and Development, recommended by the Committee on Medical Research. On the research staff of the project are: TAMARA DEMBO (Research Director), HELEN H. JENNINGS (Research Associate in Psychology), RALPH K. WHITE (Assistant Director), and MILTON ROSE (Psychiatrist). The Advisory Board, headed by the Chairman of the Department of Psychology, ERNEST R. HILGARD, includes members of the Department of Psychology and School of Medicine: ROGER G. BARKER, PAUL R. FARNSWORTH, GEORGE S. JOHNSON, DONALD E. KING, QUINN MCNEMAR, and CALVIN P. STONE. The project has as its aim the investigation of stigmatizing attitudes toward physical handicaps, through investigation of different degrees of maladjustment as shown in the inter-personal behavior between physically handicapped and non-handicapped, people. While emphasis is placed upon the problems of the war-handicapped the study includes those handicapped in civilian life. The study includes diverse interview and discussion techniques, group experiments, role playing, level of aspiration, value structure and value-analysis methods.

BOOK REVIEWS

ABRAHAMSEN, DAVID. *Crime and the Human Mind*. New York: Columbia University Press, 1944. Pp. xi + 222.

"The first volume to deal comprehensively with the psychiatric aspects of crime, *Crime and the Human Mind* presents a revolutionary approach to the problem." These are the presumptuous but thoroughly unwarranted claims made for Dr. Abrahamson's book in the publisher's blurb. More realistic is the goal set for himself by the author: to help dispel some confusion and to orient readers in the psychiatric-psychologic concept by writing a single book which will contain information now obtainable only in a number of unrelated volumes. The author in order to satisfy these purposes includes a comprehensive historical review of the meaning of as well as society's reaction to criminal behavior through the ages, a well-considered outline for examining the offender, a fairly detailed description of the author's preferred system of classification, and a consideration of constitutional and motivational factors in crime. Also included in separate chapters are a consideration of war and delinquency, the background of murder, and treatment of the offender. The emphasis in the book is on personality factors in the sense of forces which drive an individual to crime.

The author's background in both Norway and the United States for the consideration of this particular problem is seemingly rich and varied. In his listing of psychological tests included in his examination of the offender, his emphasis in the selection as well as consideration of the tests is on personality factors rather than the IQ. Standardized intelligence tests he lists are the Bellevue Adult, Merrill-Terman, and Babcock tests. The only other set of tests he lists are projective personality tests: Rorschach, Szondi, and Thematic Apperception tests. He also refers to the cruelty-compassion test of Hawthorne. In his consideration of constitutional factors he shows a deep appreciation of Lombroso's contribution and a familiarity with Hooton's work, of which he is realistically critical; but for some reason he completely omits Sheldon's more recent work on physique and temperament. His system of classification may serve his purposes well, but it is probable that individuals with different background of experience would choose classifications of their own making that are more in line with their own approaches. In his consideration of motivation in murder his emphasis is on self-destruction, and seemingly the individual genesis and development, continuity and discontinuity, in a single life story are temporarily forgotten. The road to self-destruction is the one emphasized. In spite of his training with Malinowski and his realization that disunity and conflict in family rather than broken homes contribute towards criminal behavior, he uncritically accepts the Oedipus complex in his consideration of relationship of family attachments to behavior. Again, in spite of his realization that social factors and anthropological knowledge have to be considered in understanding crime, the author uncritically accepts Jung's concept of racial or collective-unconscious. In his evaluations of heredity and environment the attitude and conclusions are in line with modern investigations, to many of which no reference is made.

Though not revolutionary nor very comprehensive, this book does represent a handy first volume for orienting a worker in the field of criminal behavior. Particularly can it serve as a background, in the light of which more recent volumes emphasizing in some greater detail other works and other approaches can be more clearly understood.

H. MELTZER.

Psychological Service Center, St. Louis, Missouri.

HOLLINGWORTH, H. L. *Leta Stetter Hollingworth*. Lincoln: University of Nebraska Press, 1943. Pp. 204.

Leta Stetter was born in a "soddy" near Chadron, Nebraska. Later she lived in a log cabin and attended a rural one-room school. Her pioneer forebears included as varied personalities as a preacher-farmer grandfather who fought a courageous but losing battle against poor land and the elements and an irresponsible cowboy-minstrel father who never reached maturity though he lived to be very old.

Early childhood was spent on the grandfather's farm; adolescence less happily in the home of her father and step-mother at Valentine. This home was referred to by Leta in her letters as the "fiery furnace." Deliverance came when she graduated from high school at sixteen and entered the University of Nebraska. There she majored in English Literature and obtained a B.A. degree and a Teacher's Certificate. After teaching in the high schools at DeWitt and McCook for one year each, she went East to marry Harry L. Hollingworth.

Though a great deal of her time was devoted to household task during the early years of her marriage, she managed to earn M.A. and Ph.D. degrees from Columbia University, and then became an instructor on the staff of Teachers' College. She was a full professor in the same institution at the time of her death. In 1938 she and her husband returned to their alma mater to receive Doctors of Laws degrees. She died in 1939 after a brief illness.

H. L. Hollingworth has written a simple, sincere, but guarded biography of his wife. In an effort to be as objective as possible, he has depended largely upon records and letters for his material, and has reproduced many of her poems. This reviewer would have preferred less of the purely objective material and more of the biographer's own impressions of her personality, interests, and professional achievements. It is of course natural that he should refrain from elaborating upon their married life. Unfortunately, however, from the point of view of the reader interested in tracing the development of Mrs. Hollingworth's personality to maturity, this leaves a great gap. There are other gaps in the chronicle also: some because information was lacking and others where information was deliberately withheld in order to save living relatives and friends possible embarrassment.

Of special interest to the psychologist is the diary kept by Leta's mother describing her first year of life. The work of a keen observer, it includes a careful record of a number of behavioral sequences indicative of precocious development.

The biography provides an explanation of Leta Hollingworth's championship of suitable education for gifted children. She was herself a typical gifted child. At ten she put away childish things in order to become "competitive." She early showed a love for verbal expression and from adolescence until her death she wrote continuously—stories, poems, and letters as well as scientific articles and books. It appears from the quality of her poems that it is largely circumstantial that we know her as a scientist and an educator rather than as a literary figure. She is portrayed as a person of great vitality, many interests, and a sensitivity to beauty truly remarkable against the bleakness of her early environment.

Those who knew Leta Hollingworth and her work will enjoy this biography, though at times they will be irritated by long passages of very brief quotations from her letters with little connecting exposition. Many fine pictures of her at successive ages are an especially valuable part of the book. A complete list of publications has been appended.

KATHARINE M. MAURER.

University of Nebraska.

REIK, THEODOR. *The psychologist looks at love*. New York: Farrar and Rinehart, 1944. Pp. xviii + 300.

Poets have gazed; philosophers and some psychologists have glanced, and sometimes penetrated, the psychology of love by presenting collected intuitions, scattered hunches or striking case histories. Reik has applied a systematic set of basic psychodynamic concepts within a consistent theoretical framework. Notwithstanding his surface attacks on the body of *Psychoanalysis*, he has extended its frontiers into normal adulthood by his profound insight into various normal love phenomena, particularly romantic love. He makes penetrating forays into the problems of parent-child relationships, friendship, general attitudes toward society, and of certain religious and artistic experiences.

Reik develops and refines two propositions (112): 1) "Love is not originated in the sexual urge but belongs to the realm of the ego-drives." 2) "Love is in its essential nature an emotional reaction-formation to envy, possessiveness, and hostility." Differentiating sharply between biological sexuality and psychic loving, he abandons the problem of their interrelationships and proceeds with the unconscious strivings of the discontented ego. The growth of the ego-model (particularly in adolescence) into relatively impersonal ego-ideals may result in a painful self-dissatisfaction which is preparatory to an active, unconscious search. The love-object chosen must possess an appreciable quota of those tendencies and qualities sought. Then envy and hostile competition must be overcome; the dramatic conflicts begin, both within and between the two, with the dynamics reaching deep into the early layers of the ego, and subject to the errors and illusions characteristic of primary processes. Various types of love relationship may develop, interactions of the variable and contradictory unconscious ego drives involved. Successful relating is seen in a relief of previous dissatisfaction and hostility through an ego expansion, a very primary psychic identification and absorption of one another. Failure may occur at any stage in the blossoming; Reik makes acute diagnoses of basic failure types. The inevitable fading of intensely romantic love is also analyzed. "Transformation" may occur to a more peaceful sharing, more rewarding to a mature ego. Reik concludes with a rich discussion of the basic hate-love reaction-formation process in related social, religious, and aesthetic phenomena.

The genetic core of love (and achievement, an alternative ego-completion) is located in the child's drive for and insecurity in mother affection; "Love begins as an unconscious fantasy of being loved" (181). Reik proposes that "women in general are more insecure than men" (173), yet he fails to relate this to the relevant body of precise genetic data and hypotheses on differential parental handling, on sexual (dis)pleasure experiences, and personality patterning residues from the fourth year on. Consequently, infant narcissism is misinterpreted and adult sexuality is left as a purely biological drive.

It is interesting to compare Reik's thesis with another psychoanalytic development, Wilhelm Reich's (Function of the Orgasm). Both attack Freud's libido theory, yet with quite contrary objections. Reich declares that Freud abandoned his original insights into the basic significance of complete physiological, sexual release. Reik insists that Freud continued to approach love as "aim-inhibited sex" and to imply that "love and sex . . . are of the same stuff" (23). Neither discusses adequately the effects of loving upon sexuality, or vice versa; Freud saw the complexities and worked cautiously (9-11). Yet Reik insists upon a strict separation of sex and love (23), ignores the deep polarity character (Jung) of a man-woman love relationship, and neglects the various genetic levels differentiating dominance-submission roles for male and female behavior; e.g. nothing on the "brave deserve the fair" formula. Such procedure violates

a fundamental methodological premise basic to a complete psychoanalytic formulation: the principle of multiple-determinism. Also, no anthropological or aesthetic or martial considerations of love are given. Reik admits to gaps and promises a next work on love-sex interrelations.

It is, however, no small contribution to systematize the psychodynamics of ego mechanisms in adult love-relating. Dr. Reik has written a brilliant analysis. Frequent, delightful excursions into roughly equivalent popular terminology and a degree of lyrical redundancy will probably assist the non-academic and, perhaps, the non-analytic reader.

JOEL SHOR.

New School for Social Research.

YOUNG, K. *Social psychology* (2nd Ed.). New York: F. S. Crofts, 1944. Pp. viii + 578.

In the revision of a text, it is customary to introduce new material to supplement that presented in the original, to add one or more new chapters, and to shift the order of presentation. This Young has done in his second edition of *Social Psychology* which was first published fifteen years ago. In most respects, this has improved the book, though it is to be regretted that this policy was not carried further in some sections.

The book is divided into three parts. *Part one*, nearly one half of the entire book, presents a discussion of personality and some of its basic relations to society and culture. In view of the present trends in psychological investigation, this emphasis seems justified, though the space given to a discussion of learning, drives and emotions, and the foundations and mechanisms of personality repeats much of what the student has already covered in general psychology, presumably a prerequisite for social psychology.

To show that social behavior is not limited to humans, Young introduces a chapter on social life in different animal species. This is an innovation, so far as the usual pattern of social psychology texts is concerned, and should prove to be an interesting introduction to the subject of social behavior. With the vast amount of scientific information available today regarding the social behavior of children of all ages, it is to be regretted that Young did not continue this genetic approach and show how adult social behavior is the direct outgrowth of the socialization that takes place during the developmental years.

The influence of social and cultural factors on personality development is treated from the point of view of primitive as well as contemporary social groups. Examples from selected tribes of native peoples, and from contemporary society are used to illustrate the interplay of culture and personality. This information is given in tabular form which, while a concise method of presenting a mass of material, makes tedious reading and to a certain extent leaves interpretation of the facts presented to the reader who may or may not realize the true significance of these forces on the personality development of the peoples.

Part two which is limited to an analysis of *Some Aspects of Social Conflict* includes chapters on prejudice, revolution, war, civilian morale and other problems of morale. Young prefaces this section by stating that "conflict presents the most serious and persistent problems in group relations." He then devotes two chapters to a discussion of racial, industrial, political, religious and other kinds of prejudice, and three to a consideration of revolutions and wars as the most violent and engrossing human struggles for power.

Because of its timeliness this section is extremely important. The only criticism to be offered is that it is too short. While fewer experimental studies are quoted to illustrate the points discussed than in part one, examples from newspaper reports, magazines, other textbooks and discussions by specialists in their respective fields not only add interest to these chapters, but also serve to drive home the points the author is stressing.

Part three, devoted to the *Mass Behavior* of crowds and of publics, analyzes and describes the thought and conduct of individuals under mob conditions. Forms of mass behavior, the nature of the leader and of the audience, fashion, public opinion, the media of public opinion formation, propaganda, psychological warfare, and finally control and power, are the main topics discussed. The chapters on opinion and its formation are especially significant and timely. The analysis of opinion polls and the roles played by the radio, motion pictures and the newspapers in opinion formation have a close bearing on American life today. The chapter on *Fashion* seems a trifle superficial though, it is true, scientific research in this field has been somewhat scanty.

Footnote references throughout the chapters, more comprehensive references as suggested readings given at the end of each chapter, a glossary of technical terms and non-technical ones carried over from common usage into social psychology, and a brief summary of the highlights of each of the three sections, preceding the chapters of these sections, serve to make the text a very readable one. Teachers and students of social psychology may feel confident that they are given a summary of the most recent scientific information in this field between the covers of this book and that as a text, it will serve its purpose adequately.

ELIZABETH B. HURLOCK.

Columbia University.

NOTES AND NEWS

EDMUND BURKE DELABARRE, professor emeritus of psychology at Brown University, died March 16, at his home in Providence, R.I. He was 81 years old. Dr. Delabarre studied at Brown, Amherst, Berlin, Harvard (A.M., 1889), Freiburg (Ph.D., 1891), and the Sorbonne. He came to Brown in 1892, where he established one of the first ten psychological laboratories in America. Forty years later he retired from teaching, but continued to come to the laboratory daily until he was incapacitated by heart trouble two years ago. His primary research was in the field of kinaesthesia, but he also devoted considerable attention to the deciphering of inscribed rocks in New England.

The Reverend JOHN EDWARD RAUTH, O.S.B., associate professor of psychology, the Catholic University of America (Washington, D.C.), died, March 5, at the age of fifty-nine years. Father Rauth had served as instructor in chemistry (1913-17, 1919-21), Mount St. Mary's College (Emmitsburgh, Md.), and instructor in psychology (1922-34) and assistant professor (since 1934), the Catholic University of America. He had also held an instructorship in Trinity College since 1930.

At the meeting of the Society of Experimental Psychologists held in New York City on April 5, 1945, the Howard Crosby Warren Medal for outstanding work in experimental psychology was awarded to CLARK L. HULL, of Yale University, "for his careful development of a synthetic theory of behavior. This theory has stimulated much research and it has been developed in a precise and quantitative form so as to permit predictions which can be tested empirically. The theory thus contains within itself the seeds of its own ultimate verification or of its possible final disproof. A truly unique achievement in the history of psychology to date."

On March 21st in Wilmington, Del., a testimonial dinner was held for J. E. W. WALLIN, who retires this year as director of the division of special education and mental hygiene, Delaware State Department of Public Instruction. A book of 117 testimonial letters from friends and professional colleagues in twenty-four states was presented to Dr. Wallin. The inscription on the cover page was "To J. E. Wallace Wallin, Psychologist, Educator, Humanitarian, in Appreciation of a Life of Service," and an unusual illuminated title page from the brush of MARTIN JENNINGS bore the inscription "To J. E. Wallace Wallin, in Appreciation of a Life Well Spent in the Service of Handicapped and Mal-adjusted Members of Society." CHARLES E. SKINNER was chairman of the meeting. The presentation was made by LLOYD E. YEPSEN.

DONALD G. MARQUIS, of Yale University, has been appointed chairman of the University of Michigan Department of Psychology, effective September, 1945, to fill the vacancy left by the retirement of WALTER B. PILLSBURY in June, 1942. Dr. Marquis who has taught at Yale since 1933 has recently been executive director of the Office of Psychological Personnel of the National Research Council.

VICTOR R. NOLL, who has been serving as assistant to the commanding officer of the Navy V-12 unit at the University of Illinois, was reinstated as professor of education, effective June 1, at the Michigan State College of Agriculture and Applied Science (East Lansing).

JOHN M. STALNAKER, former professor of psychology, Princeton University, who has been serving as general director of the Army-Navy College Testing Program, has been appointed dean of students, Stanford University. Dr. Stalnaker will assume his duties in September, when the new office, created to

"co-ordinate the present functions of the registrar, the dean of men, and the dean of women," will be put into operation.

LOREN S. HADLEY, assistant professor of psychology, the Ohio State University, will assume the directorship of the Bucknell University Testing Bureau, July 1. Dr. Hadley will also be a teaching member of the staff with the rank of assistant professor.

E. Y. HARTSHORNE, who has been on leave from Harvard University since September, 1941, with the Office of Strategic Services, the Office of War Information, paid a brief visit to the Harvard department of psychology while on leave recently from the European Theater of Operations. Since going overseas in September, 1943, with the Psychological Warfare Branch, he has been in North Africa and Italy. He is now with the SHAEF.

AUSTIN B. WOOD, director, announces a change of name of the Office of War Service Counseling at Brooklyn College to the Veterans' and War Counseling Office, in keeping with the newly developed duties of that office.

STEPHEN M. COREY, professor of educational psychology, the University of Chicago, was appointed director of the university's audio-visual-instruction center, March 28. The center, which was formally opened on March 31, was established "to meet the increased utilization of schools of sound-films and other audio-visual media and will function in collaboration with the department of education and the university's laboratory schools." It will also make use of Britannica Films, formerly Erpi Classroom Films.

The 63rd General Assembly of Illinois passed a law providing for the education of educable mentally handicapped children, which was sponsored by the Illinois Association for Applied Psychology. The law provides that qualified psychological examiners shall determine which children are eligible for special classes or services. A qualified psychological examiner is defined as "a person who has graduated with a Master's or higher degree in psychology or educational psychology from a higher institution of learning which maintains equipment, course of study and standards of scholarships approved by the Superintendent of Public Instruction, who has had at least one year of full-time supervised experience in the individual examination of children, of a character approved by the Superintendent of Public Instruction, and who has such additional qualifications as may be required by the Superintendent of Public Instruction." A special committee has been appointed by the Superintendent of Public Instruction to assist him in judging whether credentials submitted meet the requirements laid down by law. The members of this committee are: FRANCES A. MULLEN, AGNES SHARP, HELEN SHACTER, IRENE C. SHERMAN, and ANDREW W. BROWN, *chairman*. To date 112 psychologists have made application to become qualified psychological examiners and 60 who have met the qualifications set forth in the act have been duly certified by the Superintendent of Public Instruction.

Internships, New Hampshire State Hospital. The department of psychology of the New Hampshire State Hospital and its affiliated Mental Hygiene and Child Guidance Clinics offers two annual internships for the year beginning September, 1945. A Bachelor's degree from an accredited university and a major in psychology are the minimum requirements. Persons with some graduate work are preferred. Candidates will be given opportunities to obtain experience in clinical psychology (testing, interviewing, guidance procedures, etc.), research and teaching (school of nursing). Full maintenance plus a small monthly stipend are offered as remuneration. For further information write to DR. A. I. RABIN, *New Hampshire State Hospital, Concord, N. H.*

Internships Worcester State Hospital. Six 12-month internships will be available in the psychology department of the Worcester State Hospital, beginning September 1, 1945. These positions are open to students, male or female, who have majored in psychology, preference being given to those with graduate training and whose curriculum has included courses in abnormal psychology and psychometrics. The internship offers supervised instruction in the principles and practice of clinical psychometrics and in general psychopathology. Opportunity is offered to attend staff meetings and conferences, courses in psychiatry and related fields, and to participate in seminars on psychopathology and clinical psychometrics. The interne is also expected to carry a research project under supervision. There is no cash stipend but full maintenance consisting of room, board and laundry is provided. Letters of application and credentials (Appointment Bureau records, letters of recommendation, grade transcripts, etc.) should be addressed to DAVID SHAKOW, Worcester State Hospital, Worcester 1, Mass.

The National Research Council announces the receipt of a grant of \$335,000 from the Rockefeller Foundation for the establishment of a temporary, nationwide program of predoctoral fellowships for study in the natural sciences. The fellowships are designed to encourage resumption of graduate study by young men who had to interrupt their education to engage in war work by enabling them to devote essentially full time to the completion of their work for the doctor's degree. Plans for the administration of the fellowships and methods for the selection of candidates are not yet worked out in detail, but it is intended that stipends will be fixed at rates to compare favorably with most other fellowships. The Council and the Foundation have developed this program to alleviate the very serious set-back to American scientific competence resulting from the war's interference with normal educational processes. In view of the uncertainty of the duration of the war, it is not expected that the program can be inaugurated immediately. The National Research Council will continue to administer its postdoctoral fellowship program, which has been such an outstanding factor in building up the scientific competence of the country, and which has thereby contributed essentially to the effort in meeting the present crisis.

A revised and enlarged bibliography on services for handicapped veterans, *Rehabilitation of the Disabled Serviceman*, is now available upon request from the Russell Sage Foundation, 105 East 22nd Street, New York 10, N. Y., at 20 cents per copy.

Rehabilitation personnel will be interested in reviewing the 19-page *Annual Report for 1944 of the Office of Vocational Rehabilitation*, Federal Security Agency. The report may be obtained from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 10 cents per copy.

Growth of the Psychological Corporation. The Annual Report of the Psychological Corporation for 1944, issued in April, shows that the business has expanded from gross receipts of \$115 in 1922 and \$8,956 in 1931 to \$763,694 in 1944. The annual increase has varied from 10 per cent (1941) to 163 per cent (1933). The increase in 1943 was 62 per cent (from \$378,936 to \$611,504). There have been no deficits since 1934. Dividends have been paid in 1943 and 1944. Government contracts have constituted about one-fifth of the Corporation's business in the last two years, but the increases would still have been over 25 per cent in 1943 and 1944 without them. Psychologists can obtain a copy of the Annual Report by writing to the *Psychological Corporation*, 522 Fifth Avenue, New York 18, N. Y.

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